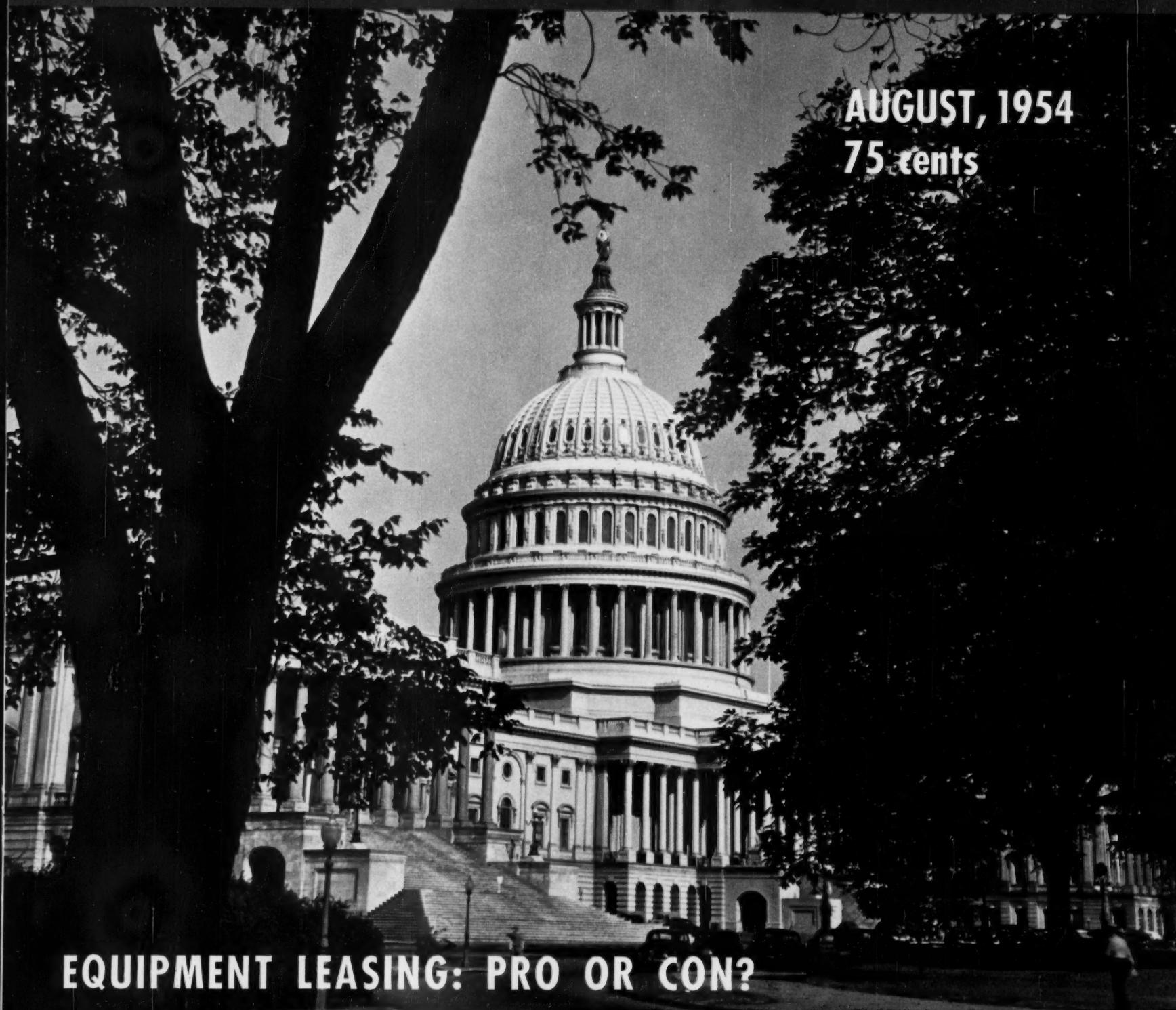


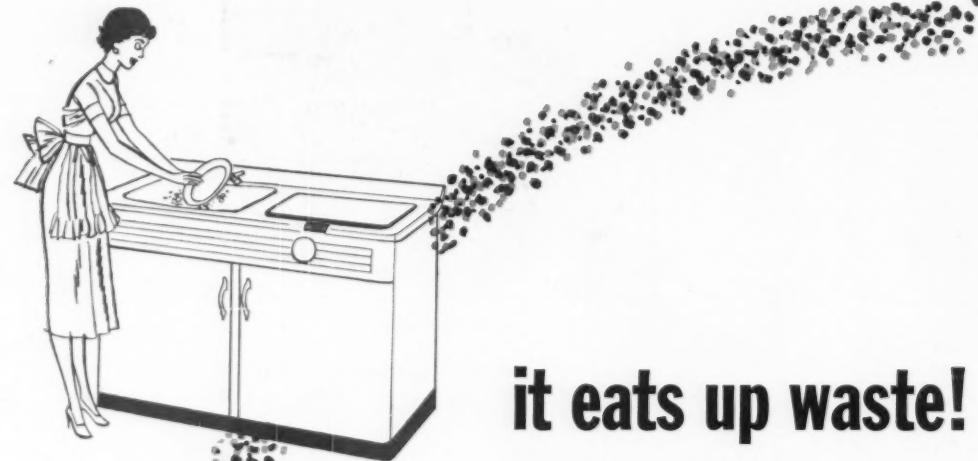
DUN'S REVIEW and Modern Industry

A *Dun & Bradstreet* PUBLICATION

AUGUST, 1954
75 cents



**EQUIPMENT LEASING: PRO OR CON?
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it eats up waste!

Food waste and waste motion . . . a modern kitchen disposer eliminates both quickly, permanently.

Today's homemaker never leaves her kitchen sink as she takes care of what used to be an unpleasant chore. *In Many of America's best-known food waste disposers an Emerson-Electric motor does this work for her.*

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St. Louis 21, Mo.

Write for these
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Motor Data Bulletins



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<input type="checkbox"/> M-426-C Integral	<input type="checkbox"/> M-426-G Blower
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Your dependable home freezer may contain up to 85 feet of leakproof Bundyweld Tubing. Manufacturers insist on giving you Bundyweld's unequalled protection in evaporators, condensers, compressor parts and refrigerant lines in refrigerators and home freezers.

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"The lifelines of refrigerators and freezers"

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DUN'S REVIEW and Modern Industry

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A quarterly review of current developments in business conditions with emphasis on the important indicators of the present and of the future. What is the over-all picture and how does it compare with past conditions?

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I. WAYNE KELLER
Controller, Armstrong Cork Co.

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MARGARET L. JONES
Executive Methods Editor

It takes two to make training effective and worthwhile—and if the trainee is non-receptive, the trainer has a tougher job on his hands. Here is a discussion of some of the obstacles to learning that a supervisor can avoid as he guides subordinates.

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Heard in Washington 7

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Here are quotes to show what top management men are saying about the business and community problems which are facing America to-day.

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New York is the world's Number One port and ships from many nations pass the skyscrapers on their way to and from other ocean havens.

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PETER F. DRUCKER

Is decision-making an inherited talent or can it be learned? Every executive knows that the ability to make decisions is one of the major factors of efficient leadership, but there are right and wrong ways to accomplish this important goal.

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The once-a-year plant tour for employees, neighbors, community leaders, grows in popularity, but a great many companies keep open house the year round. Here's how they use the program to build sales and improve community relations.

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Marketing Editor

Don't plunge in with a good product—it's not enough. It takes planning, appraisal, and scheduling plus clearly defined areas of executive responsibility. Here, with highlights on essentials, is how one company handled the problem.

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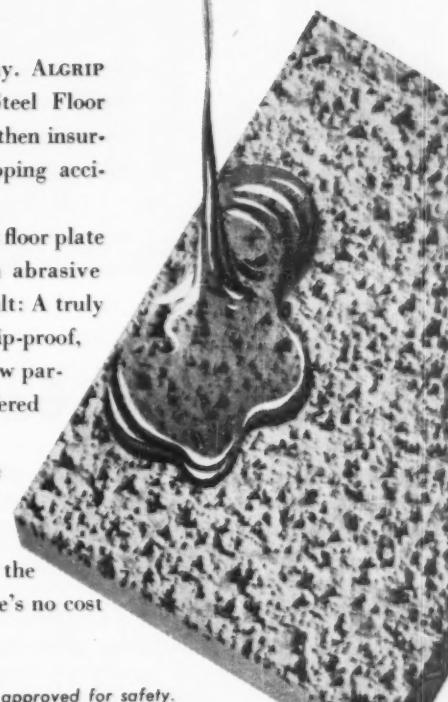
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It occurs every day. ALGRIP Abrasive Rolled Steel Floor Plate is installed—then insurance premiums tumble—slipping accidents stop.

The reason is tough steel floor plate *impregnated uniformly* with abrasive "grinding wheel" grain. Result: A truly non-skid surface that *stays* slip-proof, because wear only exposes new particles . . . a "safety extra" offered only by ALGRIP.

If your accident insurance premiums are too high, let ALGRIP bring them down. Mail this coupon today for the complete ALGRIP story. There's no cost or obligation.



Underwriter's Laboratories approved for safety.
Note depth and uniformity of abrasive grain.



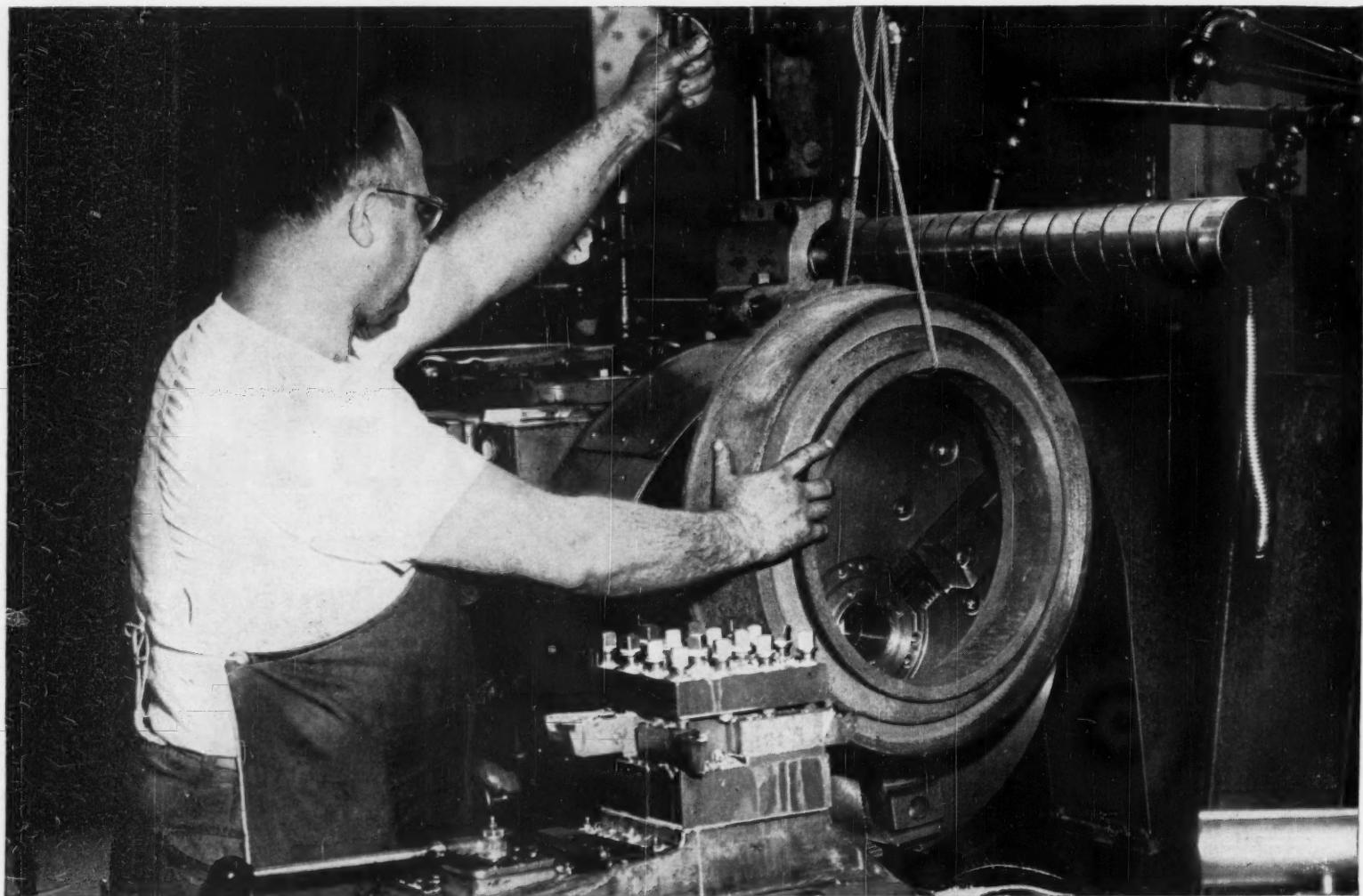
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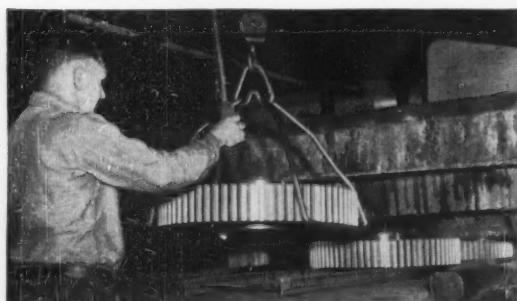


Circular blank being positioned for machining at a General Electric plant.

So Many Uses for These Sturdy, Low-Cost Blanks

If the products you make require the use of circular steel blanks, we have something that will interest you. We mean Bethlehem's circular forgings, as they are known to the trade. Actually, these strong, homogeneous blanks are both forged and rolled, with the attendant benefits of the two-way process.

Customers use them for making gears, including spur, bevel, and herringbone; crane-track wheels, end rings, sheave wheels, turbine rotors, flywheels, tire molds and rings, industrial wheels, pistons, clutch drums, and similar parts. For all such applications



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Bethlehem blanks are the solid, logical choice—the ideal choice, really.

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Your own firm can probably find plenty of uses for these sturdy forged-and-rolled steel blanks. They are available in a wide range of sections, and they can be furnished untreated or heat-treated, as you prefer. Sizes run from 10 in. to 42 in. OD.

We're always glad to tell you the full story, any time you wish. But before we do, perhaps you'd like to send for our Booklet 216. It shows how the blanks are made, and how they are used by many well-known companies. Write for a copy today.

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BETHLEHEM, PA.

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CIRCULAR
FORGINGS



BRoad thinking inside and outside of Government is being encouraged by the Joint Committee of Congress on the Economic Report. More reliance is being put on informed conferences than on public hearings. If someone in close touch with business comes to town, he is invited in to give his appraisal of situations with which he is most familiar. The same is true of foreign visitors. Any members available and staff personnel gather for round table exchange of views. Government economists are encouraged to appear on the same basis. The committee has great advantage in that it does not have to recommend legislation.

★ ★ ★ ★ ★

Monetary policy is fixed for the year. It is sanguinely expected that the reducing of reserve requirements will provide ample money for crop moving, for Christmas inventories, and other purposes during the period when receipts are low. The change in reserve requirements was not in the interest of easier money, but to prevent money from getting tighter. Before the action was taken bank reserves were larger than was necessary. Requirements were raised in the 1930's to absorb surplus gold stocks. The country has grown up to its gold stocks. It was thought advisable to adjust the structure of bank assets and relieve the banks from carrying idle reserves and have earnings that would attract capital for amplifying the amount of credit that could be extended.

★ ★ ★ ★ ★

Although his flexible price support plan provoked unusual acrimony, Ezra Taft Benson attained unusual distinction in the struggle. None of the pressures brought to bear caused him to deviate from his course. His courage, integrity, and realism have put him on a plane attained by few other secretaries of agriculture.

★ ★ ★ ★ ★

Europe's gold and dollar reserves promise to continue to increase. Less gold is going into hoards, more into reserves. The black market for gold has all but disappeared. Those who bought at fancy prices are sorry. Some of the gains are being invested in our market.

Convertibility of currencies has been delayed by the postponement of more definite foreign trade policies. Another factor is some continuing feeling abroad that the economic improvement in the United States may not last. Convertibility would mean broader buying all over the world and would stimulate private investment in countries needing capital. Despite the attitude of our Congress toward freer trade, the world is coming to have more confidence in the stability of currencies.

★ ★ ★ ★ ★

In the public mind it is the cost of distribution which contributes most to high prices. One of the activities of the recently established Office of Distribution is to counteract exaggerated assumptions. Realizing that statistics appeal to the head and not to the heart the agency, in its publicity, is using as few figures as possible. More marketing facts are being disseminated. Distribution now has a voice in Government councils.

★ ★ ★ ★ ★

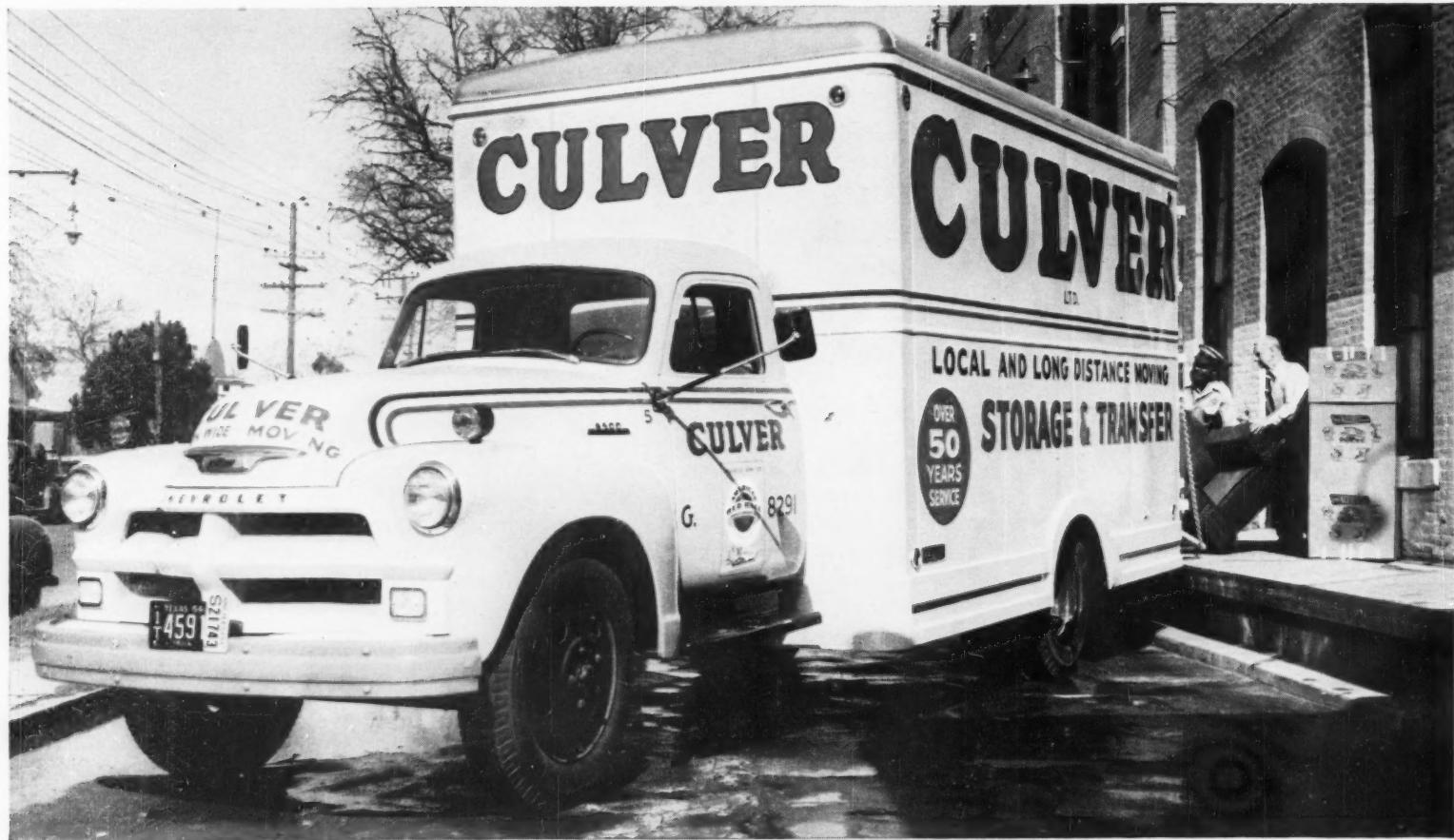
Whatever gains the Communists make in Asia, the effect on American business will not be devastating. The most serious possible loss would be tin. Use of tin in the United States might have to be curtailed by as much as 50 per cent.

Immediately following the Churchill talks American officials were resigned to the possibility of losing all of Southeastern Asia. It was difficult to understand the British position because they had much to lose—Malaya and the rise of Communist influence in India and Ceylon. The position of the United States in the Pacific, it is felt, can be well maintained by close co-operation with Australia, New Zealand, Japan, the Philippines, and Formosa. There is no thought of giving up the stronghold of Okinawa or the strategic position in Korea.

Paul Croton
WASHINGTON, D. C.

New Chevrolet Trucks

deliver more power, more
ruggedness, for less money!



Making sure the truck you buy has plenty of power and chassis ruggedness is good business in any man's book. Getting the money-saving extra power and ruggedness of Chevrolet trucks is *better* business in any man's bookkeeping.

EXTRA POWER MEANS BIGGER SAVINGS

No doubt about it, the extra power you get from new high-compression Chevrolet truck engines means you're going to pay out less for gasoline. Over a year, that adds up to a sizeable savings. Increased power brings time-saving benefits, too—greater acceleration and hill-climbing ability . . . you haul faster, get the job done quicker!

GREATER RUGGEDNESS CUTS OPERATING COSTS

Heavier axle shafts and wheel hubs on two-ton models; bigger, more durable clutches on light- and heavy-duty models; stronger, more rigid frames on all models. These features pay off in extra-low upkeep costs . . . extra miles of dependable truck life.

But these *while-you-drive* savings aren't all, by a long shot. You even save *when you buy*. For Chevrolet is America's lowest-priced line of trucks. Stop by your Chevrolet dealer's soon to see the "savings" trucks on the road. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

MOST TRUSTWORTHY TRUCKS ON ANY JOB!

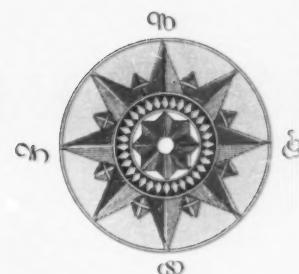


CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

THREE GREAT ENGINES—The new "Jobmaster 261" engine* for extra heavy hauling. The "Thriftmaster 235" or "Loadmaster 235" for light-, medium- and heavy-duty hauling. **NEW TRUCK HYDRA-MATIC TRANSMISSION***—offered on $\frac{1}{2}$ -, $\frac{3}{4}$ - and 1-ton models. Heavy-Duty **SYNCHRO-MESH TRANSMISSION**—for fast, smooth shifting. **DIAPHRAGM SPRING CLUTCH**—improved-action engagement. **HYPOID REAR AXLE**—for longer life on all models. **TORQUE-ACTION BRAKES**—on all wheels on light- and medium-duty models. **TWIN-ACTION REAR WHEEL BRAKES**—on heavy-duty models. **DUAL-SHOE PARKING BRAKE**—greater holding ability on heavy-duty models. **NEW RIDE CONTROL SEAT***—eliminates back-rubbing. **NEW, LARGER UNIT-DESIGNED PICKUP AND PLATFORM STAKE BODIES**—give increased load space. **COMFORTMASTER CAB**—offers greater comfort, convenience and safety. **PANORAMIC WINDSHIELD**—for increased driver vision. **WIDE-BASE WHEELS**—for increased tire mileage. **BALL-GEAR STEERING**—easier, safer handling. **ADVANCE-DESIGN STYLING**—rugged, handsome appearance.

*Optional at extra cost. Ride Control Seat is available on all cabs of $1\frac{1}{2}$ - and 2-ton models, standard cabs only in other models.
"Jobmaster 261" engine available on 2-ton models, truck Hydra-Matic transmission on $\frac{1}{2}$, $\frac{3}{4}$ - and 1-ton models.

Compass Points



OF BUSINESS

The future course of business is determined to a large extent by events in the past. The 39 Compass Points on pages 10 and 11 reflect the developments in various fundamental parts of the economy over a period of years, as well as in recent quarters; the chart at the right measures the possibilities for the fourth quarter of 1954 in terms of all-time peak past quarters. The indexes, from left to right, are constructed from Compass Points 3, 11, 13, 16, 20, and 24; the fourth quarter estimates do not take into account the consequences of an unexpected acceleration in defense spending, or other unusual developments which might radically influence business conditions.

HERE were signs of a renewed buoyancy in business in the middle months of 1954. The downward drift, evident since last Summer, was arrested and over-all volume appeared to be moving laterally at a level about 4 per cent below last year's all-time high (Compass Point 20). In manufacturing, where the adjustment of production to below-peak levels of buying was sometimes painful, both new orders and output picked up slightly (Compass Point 16). Retail sales edged upward, stock prices advanced markedly, and construction continued to boom, although there were still problems in the economy with some inventories, farm surpluses, and unemployment.

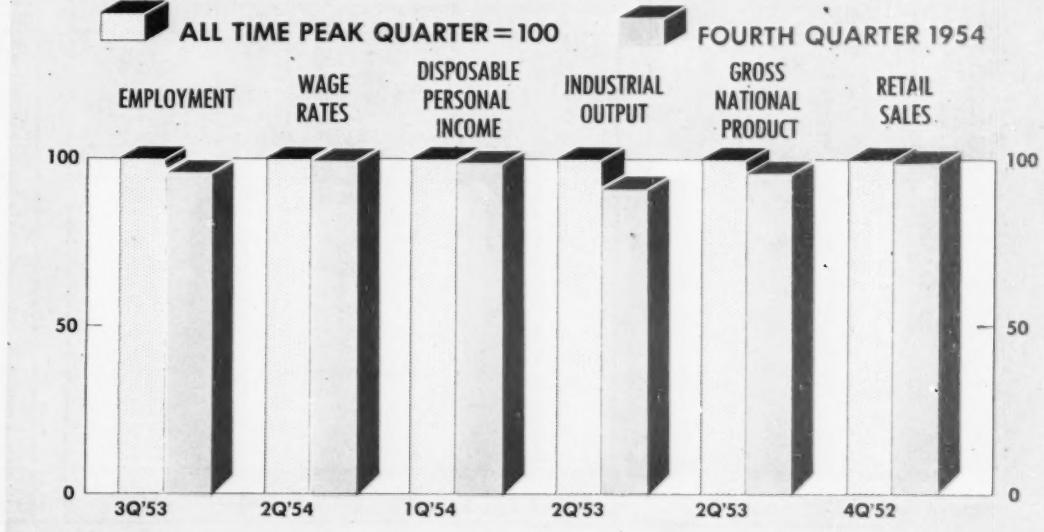
Whether the balance might be tipped toward a further adjustment or toward a resumption of growth was a point of dispute among some observers. However, the consensus was that an Autumn advance in business levels was a distinct possibility. Business men were usually confident of the future.

Business Men's Expectations

Higher sales volume than a year ago was expected in the fourth quarter of 1954 by 48 per cent of the 1,126 executives interviewed by trained reporters in the latest DUN & BRADSTREET survey of business men's expectations. Less than one-quarter (22 per cent) of the executives thought that their sales in the fourth quarter of 1954 might fall below the very high year-ago level (Compass Points 24, 25, and 26). That their net profits might equal, or exceed, the comparable 1953 figure was expected by 82 per cent of the business men.

Inventories would be pared down in comparison with last year's stocks by 27 per cent of the

FOURTH QUARTER 1954 - HOW NEAR PEAK?



executives, while 21 per cent thought their inventories would be higher than a year ago and 52 per cent expected no change. Stability in employment and selling prices appeared likely,

FOURTH QUARTER 1954 EXPECTATIONS Compared with Year-Ago Levels

	Per Cent of Business Men Expecting Increase:	No Change:	Decrease:
NET SALES.....	48	30	22
NET PROFITS....	39	43	18
SELLING PRICES.	10	74	16
INVENTORIES...	21	52	27
EMPLOYEES.....	9	69	12

with about three-fourths of the executives expecting no change in either of these aspects of their business.

Manufacturers were somewhat more optimistic than in preceding surveys about their prospective new orders for the fourth quarter of 1954; 82 per cent of the manufacturers of durable goods and 89 per cent of the manufacturers of non-durables thought that order volume would be as high as, or higher than, a year ago.

While manufacturers' new orders recovered steadily from the January low, rising to \$23.1 billion in May, they remained about 11 per cent below a year ago. But new orders in March, April, and May surpassed the levels for any previous months since July 1953.

The persistent decline in unfilled orders continued unabated, reflecting the gap between new orders and shipments. Unfilled orders for durable goods in early June were about 33 per cent below a year ago; they amounted to about 4.3 months' sales, compared with 5.4 months' a year previously. The great bulk (usually around 95 per cent) of unfilled orders are held by manufacturers of durable goods.

Manufacturing, which employs about one-third of all job-holders and accounts for a similar proportion of the national income, felt more sharply than other industries the downward readjustment in business. The durable goods manufacturers were particularly affected. Employment in durable goods manufacturing in the first six months of 1954 was 7 per cent below a year ago, compared with a decline of 3 per cent in non-durables manufacturing and a rise of 4 per cent in construction.

Similarly, the sales of manufacturers of durable goods in the first half of 1954 were about

39 COMPASS POINTS OF BUSINESS

CENSUS		EMPLOYMENT				PRICES			
1 POPULATION Millions	2 NAMES IN REFERENCE BOOK Thousands	3 EMPLOYMENT Civilian Millions	4 EMPLOY- MENT Agricultural Millions	5 EMPLOY- MENT Nonagricultural Millions	6 UNEMPLOY- MENT Millions	7 CONSUMERS' PRICES Index	8 RETAIL PRICES Index	9 WHOLESALE PRICES Index	10 INDUSTRIAL STOCK PRICE AVERAGES Dollars
1914	99.1	1,655	37.6	11.4	26.2	...	42.9	43.3	81.03
1919	105.1	1,711	42.0	10.5	31.5	...	74.0	88.1	99.78
1920	106.5	1,821	41.3	10.7	30.6	...	85.7	98.1	90.04
1921	108.5	1,927	37.7†	10.8†	26.9†	...	76.4	62.0	73.48
1929	121.8	2,213	47.6	10.0	36.3	1.5	73.3	120.9	61.9
1930	123.1	2,183	45.5	9.9	34.3	4.3	71.4	56.1	236.34
1931	124.0	2,125	42.4	9.8	31.3	8.0	65.0	47.4	138.58
1932	124.8	2,077	38.9	9.7	28.0	12.1	58.4	42.8	64.57
1939	130.9	2,116	45.8	9.3	35.6	9.5	59.4	99.0	142.66
1940	132.0	2,156	47.5	9.5	38.0	8.1	59.9	100.6	51.1
1941	133.2	2,171	50.4	9.1	41.3	5.6	62.9	108.3	121.82
1942	134.7	2,156	53.8	9.3	44.5	2.7	69.7	124.9	64.2
1943	136.5	2,027	54.5	9.1	45.4	1.1	74.0	134.0	107.20
1944	138.1	1,859	54.0	9.0	45.0	.7	75.2	137.5	134.81
1945	139.6	1,913	52.8	8.6	44.2	1.0	76.9	141.4	143.32
1946	141.3	2,146	55.2	8.3	46.9	2.3	83.4	155.2	191.65
1947	144.0	2,410	58.0	8.3	49.8	2.1	95.5	180.1	96.4
1948	146.6	2,555	59.4	8.0	51.4	2.1	102.8	192.7	177.58
1949	149.2	2,684	58.7	8.0	50.7	3.4	101.8	187.7	104.4
1950	151.7	2,692	60.0	7.5	52.5	3.1	102.8	189.0	179.95
1951	154.4	2,614	61.0	7.1	54.0	1.9	111.0	206.8	114.8
1952	157.0	2,643	61.3	6.8	54.5	1.7	113.5	210.4	257.64
1953	159.7	2,673	61.9	6.5	55.4	1.5	114.4	209.1	111.6
'53	I	158.7	2,665	61.0	5.5	55.5	1.8	113.6	208.3
	II	159.6	2,663	62.0	6.8	55.2	1.5	114.1	208.6
	III	160.0	2,683	62.9	7.4	55.5	1.3	114.9	210.2
	IV	160.7	2,691	61.6	6.4	55.3	1.5	115.1	209.3
'54	I	161.3	2,660	60.0	5.6	54.4	3.5	115.0	208.9
	II	162.0	2,641	→ 61.3	6.8	54.4	→ 3.3	114.9	→ 208.6

SALES						INVENTORIES		
21 FARM RECEIPTS Million dollars	22 EXPORTS Million dollars	23 IMPORTS Million dollars	24 RETAIL- SALES Million \$	25 WHOLESALE SALES Million \$	26 MANUFACTUR- ING SALES Million \$	27 RETAIL INVENTORIES Million \$	28 WHOLESALE INVENTORIES Million \$	29 MANUFACTURING INVENTORIES Million \$
1914	6,039	2,114	1,789	...	...	...	...	...
1919	14,570	7,920	3,904	36,549	60,509	...	...	12,906
1920	12,606	8,228	5,278	41,364	63,659	...	...	13,484
1921	8,116	4,485	2,509	32,954	41,897†	...	...	10,705†
1929	11,299	5,241	4,399	48,459	37,814	70,262	7,298	12,775
1930	9,050	3,843	3,061	41,989	57,017	...	3,497	11,265
1931	6,369	2,424	2,091	34,752	42,951	...	2,665	9,105
1932	4,735	1,611	1,323	25,013	30,774	...	2,307	7,332
1939	8,582	3,177	2,318	42,042	26,244†	61,340	5,285	3,075†
1940	9,056	4,021	2,625	46,375	28,919	70,313	5,819	12,873
1941	11,619	5,147	3,345	55,274	36,394	98,069	7,371	17,024
1942	16,136	8,079	2,756	57,212	41,109*	125,158	7,438	19,348
1943	20,003	12,965	3,381	63,235	45,966	153,843	7,065	20,171
1944	21,153	14,259	3,929	70,208	49,828	165,387	7,105	19,578
1945	22,125	9,806	4,159	78,304	53,708	154,481	7,442	18,457
1946	25,336	9,738	4,942	102,488	71,915	151,402	11,231	24,620
1947	30,020	14,430	5,756	119,604	87,263	191,010	13,372	29,032
1948	30,464	12,653	7,124	130,521	95,172	211,560	15,190	31,782
1949	28,129	12,051	6,622	130,721	88,252	196,997	14,570	29,038
1950	28,611	10,275	8,852	143,689†	103,896	231,415	18,699§	34,534§
1951	33,084§	15,030	10,967	158,223	113,168	266,460	19,904	43,123
1952	32,648	15,177	10,714	164,085	112,325	276,548	20,234	44,442
1953	31,188	15,737	10,900	170,741	111,800	303,372	21,208	46,943
'53	I	6,840	3,880	2,782	39,339	26,114	11,641	45,158
	II	6,185	4,230	2,849	43,410	28,201	11,453	46,334
	III	8,034	3,795	2,676	42,643	29,331	12,013	46,646
	IV	10,129	3,843	2,570	45,351	28,344	11,695	46,947
'54	I	6,603	3,394	2,498	37,944	25,260	71,332	45,959
	II	6,140	4,200	2,600	→ 43,132	26,075	→ 71,473	→ 44,700

→ Quarterly figures that are significant either for their change or their lack of change from previous levels.
First quarter figures for most series are based upon preliminary estimates and incomplete data.
Sources of the statistical series and additional information concerning the figures appear on page 15.

a record of business activity

-INCOME

INCOME					
11 WEEKLY HOURS Indust. Workers Hours	12 WEEKLY EARNINGS Indust. Workers Dollars	13 DISPOSABLE PERSONAL INCOME Billion Dollars	14 DISPOSABLE INCOME Per Capita 1953 Dollars	15 CORPORATE PROFITS AFTER TAXES Billion dollars	
49.4	11.01	33.2	894 \$	1.9	
46.3	22.08	63.5	934	5.7	
47.4	26.30	66.8	838	3.9	
43.1	22.18	52.8	730	0.0	
44.2	25.03	82.5	1,059	8.4	
42.1	23.25	73.7	977	2.5	
40.5	20.87	63.0	928	-1.3	
38.3	17.05†	47.8	794	-3.4	
37.7	23.86	70.2	1,067	5.0	
38.1	25.20	75.7	1,130	6.4	
40.6	29.58	92.0	1,284	9.4	
42.9	36.65	116.7	1,432	9.4	
44.9	43.14	132.4	1,469	10.6	
45.2	46.08	147.0	1,537	10.8	
43.4	44.39	151.1	1,508	8.5	
40.4	43.82	158.9	1,461	13.9	
40.4	49.97	169.5	1,392	18.5	
40.1	54.14	188.4	1,442	20.7	
39.2	54.92	187.2	1,424	16.3	
40.5	59.33	205.8	1,509	22.7	
40.7	64.77	225.0	1,508	20.1	
40.7	67.97	235.0	1,517	18.6	
40.5	71.50	247.9	1,552	19.5	
41.0	71.48	245.4•	1,560•	20.3•	
40.7	71.39	247.7•	1,559•	20.8•	
40.2	71.40	249.8•	1,553•	19.6•	
40.2	71.76	249.3•	1,539•	15.4•	
39.5	70.97	249.8•	1,537•	18.0•	
39.3	70.87	→ 249.5•	→ 1,340•	17.8	

- PRODUCTION

PRODUCTION				
16 INDUSTRIAL PRODUCTION (PHYSICAL) Index	17 ELECTRIC POWER PRODUCTION Billions kwh	18 BUILDING PERMITS 120 Cities Million \$	19 EXPENDITURES FOR PLANT & EQUIPMENT Billion dollars	20 GROSS NATIONAL PRODUCT Billion dollars
33	...	735	...	38.5
39	...	1,181	...	77.9
41	56.6	1,256	...	86.2
31	53.1	1,493	...	70.3
59	116.7	2,490	9.2	104.4\$
49	114.6	1,408	7.6	91.1
40	109.4	1,006	4.7	76.3
31	99.4	336	2.6	58.5
58	161.3	1,029	5.5	91.1
67	179.9	1,104	6.5	100.6
87	208.3	1,196	8.2	125.8
106	233.1	644	6.1	159.1
127	267.5	419	4.5	192.5
125	279.5	709	5.2	211.4
107	271.3	1,028	8.7	213.6
90	269.6	2,089	14.8	209.2
100	307.4	2,470	20.6	232.2
104	336.8	3,111	22.1	257.3
97	345.6	3,131	19.3	257.3
112	388.7	4,466	20.6	285.1
120	432.3	3,654	25.6	328.2
124	463.1	3,523	26.5	346.1
133	516.5	4,034	28.4	364.9
134*	124.8	883	6.3	361.8*
136*	126.2	1,143	7.3	369.9*
134*	131.3	1,079	7.1	367.2*
129*	131.1	929	7.7	360.5*
124*	131.5	948	6.2	355.8*
125*	131.4	1,119	7.0	354.5*

- FEDERAL

FEDERAL		31	32
RECEIPTS	EXPENDITURES	GROSS DEBT	BILLION DOLLARS
MILLION DOLLARS	MILLION DOLLARS		
735	735		1.2
5,152	18,515	25.5	
6,695	6,403	24.3	
5,625	5,116	24.0	
4,033	3,299	16.9	
4,178	3,440	16.2	
3,190	3,652	16.8	
2,006	4,535	19.5	
5,103†	8,966‡	40.4	
5,265	9,183	43.0	
7,227	13,387	49.0	
12,696	34,187	72.4	
22,202	79,622	136.7	
43,892	95,315	201.0	
44,762	98,703	258.7	
40,027	60,703	269.4	
40,043	39,289	258.3	
42,211	33,791	252.3	
38,246	40,057	252.8	
37,045	40,167	257.4	
48,142	44,633	255.2	
62,129	66,145	259.1	
65,218	74,607	267.4	
21,042	17,519	264.5	
16,973	20,591	266.1	
13,917	18,229	273.0	
12,536	17,287	275.2	
24,100§	15,320§	270.2§	
19,250	16,090	271.3	

—FINANCE

FINANCE				
33 CONSUMER CREDIT Outstanding Billion dollars	34 LOANS OF COMMERCIAL BANKS Billion dollars	35 CURRENCY OUTSIDE OF BANKS Million \$	36 DEMAND DEPOSITS ADJUSTED Million \$	37 INTEREST ON BUSINESS LOANS Per cent
...	13.2	1,533	10,082	...
...	22.4	3,593	17,624	6.58
...	28.1	4,105	19,616	6.68
...	26.1	3,677	17,113	5.53
6.4	35.7	3,557	22,809	5.83
5.8	34.5	3,605	20,967	4.85
4.8	29.2	4,470	17,412	4.30
3.6	21.8	4,669	15,728	4.71
7.2	17.2	6,401	29,793	2.10
8.4	18.8	7,325	34,945	2.10
9.2	21.7	9,615	38,992	2.00
6.0	19.2	13,946	48,922	2.20
4.9	19.1	18,837	60,803	2.60
5.1	21.6	23,505	66,930	2.40
5.7	26.1	26,490	75,851	2.20
8.4	31.1	26,730	83,314	2.10
11.6	38.1	26,476	87,121	2.10
14.4	42.5	26,079	85,520	2.50
17.1	43.0	25,415	85,750	2.70
20.8	52.2	25,398	92,272	2.70
21.5	57.7	26,315	98,234	3.10
25.8	64.3	27,494	101,500	3.50
28.9	68.3	28,091	103,300	3.70
25.9	65.2	26,900	97,400	3.54
27.4	65.5	27,369	97,200	3.73
28.0	66.5	27,500	98,100-	3.74
28.9	68.3	28,091	103,300	3.76
27.2	67.1	26,900	96,700	3.72
27.6	66.9	27,000	98,000	3.72

—FAILURES

38 BUSINESS FAILURES		39 LIABILITIES OF FAILURE	
<i>Number</i>		<i>Million \$</i>	
18,280		357.9	1914
6,451		113.3	1919
8,881		295.1	1920
19,652		627.4	1921
22,909		483.3	1929
26,355		668.3	1930
28,285		736.3	1931
31,822		928.3	1932
14,768		182.5	1939
13,619		166.7	1940
11,848		136.1	1941
9,405		100.8	1942
3,221		45.3	1943
1,222		31.7	1944
810		30.2	1945
1,130		67.3	1946
3,476		204.6	1947
3,252		234.6	1948
9,246		308.1	1949
9,162		248.3	1950
8,058		259.4	1951
7,611		283.3	1952
8,862		394.2	1953
2,077		81.7	I
2,207		92.7	II
2,110		102.2	III
2,468		117.6	IV
2,895		134.6	I
2,834		127.9	II

[†]Figures for this and prior dates are from another source and are not strictly comparable with later data.

Beginning in 1937 tax refunds are deducted from receipts and are not included among expenditures.

*Annual rate seasonally adjusted. *Quarterly figures seasonally adjusted. §Series revised from this date.



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12 per cent below a year ago, compared with a fractional gain among soft-goods manufacturers and declines of 5 per cent in wholesaling, and 2 per cent in retailing.

Manufacturers' inventories fell below year-ago levels this Spring for the first time in nearly four years. In relation to current sales volume, manufacturers had an estimated 3.2 months' stocks on hand at the end of June, compared with 3.3 months' a year previously (Compass Point 29).

Judging from the levels of output in industries which use large quantities of steel (construction, fabricated metals, oil well drilling), steel consumption in the first half of 1954 declined much less than the levels of output might indicate. It has been suggested that the tonnage of steel consumption in the first half of 1954 was about at the rate in 1952, or about 8 per cent higher than current production. The difference apparently came out of steel inventories, which were larger than it was earlier suspected. The continuance of first-half levels of steel consumption would seem inevitably to result in an expansion in steel production.

Building Ever Higher

Expenditures for new construction are expected to reach a record high of \$36 billion in 1954, some 2 per cent above the previous record in 1953. This revised estimate, prepared by the Departments of Commerce and Labor, is noticeably more optimistic than that suggested last November when a decline of 2 per cent in 1954 construction volume was anticipated.

Construction outlays in the first half of 1954 surpassed all expectations; at \$16.6 billion, they were 2 per cent higher than in the comparable period of 1953.

It is thought that 1,080,000 new housing units will be started this year, 2 per cent fewer than in 1953. For 1954 as a whole, private spending for residential construction is expected to be 2 per cent higher than in 1953. While industrial building outlays may drop 13 per cent, commercial construction is expected to rise 20 per cent. Notwithstanding declines of 37 per cent in public housing projects and 20 per cent in military and naval construction, total public

spending for new construction is expected to rise 4 per cent above 1953 levels.

Price Stability

Although price cuts accompanied the efforts to reduce inventories in many lines, the over-all inventory contraction was accomplished without sweeping changes in the general level of prices (Compass Points 7, 8, and 9). The Government farm price supports and the stockpiling of some agricultural products and strategic metals were important stabilizing influences. And the incorporation of higher wage rates in the fixed cost structure in many industries lessened the feasibility of price cutting.

The wholesale price average in the second quarter of 1954 was fractionally above that in the comparable period of 1953 and within 4 per cent of reaching the annual high for 1951. While the prices paid at retail continued to edge downward, the cost of living remained slightly above a year ago, mainly because of higher service charges.

Personal Spending Up

Consumer expenditures for both goods and services advanced in the second quarter of 1954, boosting total personal outlays for consumption to a level slightly above the peak annual rate of \$231 billion reached in the third quarter of 1953.

Largely because of a recovery in automobile buying, spending for durable goods rose somewhat above the first-quarter rate. A slight rise in soft-goods sales, concentrated in general merchandise stores and eating and drinking places, reflected a mild advance in consumer outlays for non-durable goods.

Incomes Sustained

Personal after-tax income in the second quarter of 1954 was almost as high as the first-quarter peak and slightly exceeded the year-ago level (Compass Point 13). The reduction in tax rates in 1954 more than offset the effects of lower-than-a-year-ago wage and salary payments in the commodity producing and distributive industries. Stability in employment and wage rates was maintained, although unemployment continued above 1953 levels (Compass Points 3, 11, 12).



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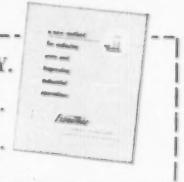
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Sources of the Statistical Data

CENSUS 1. POPULATION: *U. S. Bureau of the Census*, mid-period estimates of total population including armed forces overseas—2. NAMES IN REFERENCE BOOK: *Dun & Bradstreet, Inc.*, annual totals from July Book, other from Book nearest the end of the quarter.

EMPLOYMENT 3. CIVILIAN EMPLOYMENT: *U. S. Bureau of the Census*, data prior to 1929 from *National Industrial Conference Board*; monthly averages of noninstitutional population 14 years of age and over who were at work, temporarily absent because of sickness, strike, or vacation, or with instructions to report for work within 30 days—4. AGRICULTURAL EMPLOYMENT: *U. S. Bureau of the Census*, data prior to 1929 from *National Industrial Conference Board*; monthly averages of those employed in agriculture—5. NONAGRICULTURAL EMPLOYMENT: *U. S. Bureau of the Census*, data prior to 1929 from *National Industrial Conference Board*; monthly averages of those employed outside of agriculture—6. UNEMPLOYMENT: *U. S. Bureau of the Census*; monthly averages of those not at work but looking for work, also includes those who would have sought work except for temporary illness, belief that no work existed, or waiting to return from an indefinite lay-off.

PRICES 7. CONSUMERS' PRICES: *U. S. Bureau of Labor Statistics*; Revised series; average cost of some 300 goods and services purchased by moderate income families, as a per cent of the 1947-1949 level—8. RETAIL PRICES: *U. S. Office of Business Economics*, based upon data collected by other Government agencies; average prices at retail stores as a per cent of the 1935-1939 level—9. WHOLESALE PRICES: *U. S. Bureau of Labor Statistics*; average wholesale prices of some 2,000 items as a per cent of the 1947-1949 level—10. INDUSTRIAL STOCK PRICE AVERAGES: *Dow-Jones & Company*; daily average of the prices of 30 industrial stocks.

INCOME 11. WEEKLY HOURS: *U. S. Bureau of Labor Statistics*; average workweek for production workers, includes hours worked in overtime—12. WEEKLY EARNINGS OF INDUSTRIAL WORKERS: *U. S. Bureau of Labor Statistics*; average for production workers before any payroll deductions, reflects length of work week and hourly earnings—13. DISPOSABLE PERSONAL INCOME: *U. S. Office of Business Economics*; personal income remaining after deduction of taxes and of non-tax payments to government such as fines, licenses—14. DISPOSABLE INCOME PER CAPITA, 1953 DOLLARS: Compiled by dividing Series 13 by the items in Series 1 and adjusting results for changes in Consumers' Prices, Series 7—15. CORPORATE PROFITS AFTER TAXES: *U. S. Office of Business Economics*; total corporate profits after deducting all tax liabilities.

PRODUCTION 16. INDUSTRIAL PRODUCTION (PHYSICAL): *Federal Reserve Board*; average physical volume of manufacturing and mining output as a per cent of the 1947-1949 level—17. ELECTRIC POWER PRODUCTION: *Federal Power Commission*; total pro-

duced by utilities and industrial establishments excluding hotels, office buildings, and other commercial establishments—18. BUILDING PERMITS, 120 CITIES: *Dun & Bradstreet, Inc.*; total value of permits issued in 120 reporting cities—19. EXPENDITURES FOR PLANT AND EQUIPMENT: *U. S. Department of Commerce and Securities & Exchange Commission*; totals for private industry excluding agriculture—20. GROSS NATIONAL PRODUCT: *U. S. Office of Business Economics*; total market value of all goods and services produced by the economy before any deductions for depreciation.

SALES 21. FARM INCOME: *U. S. Bureau of Agricultural Economics*; total receipts from farm marketings, CCC loans, and Government payments—22. EXPORTS: *U. S. Bureau of the Census*; total of all merchandise—23. IMPORTS: *U. S. Bureau of the Census*; total of all merchandise—24. RETAIL SALES: *U. S. Office of Business Economics and Bureau of the Census*; data prior to 1929 from Kuznets "National Income and Its Composition"; total sales of all retail stores—25. WHOLESALE SALES: *U. S. Office of Business Economics*; total sales of all wholesalers—26. MANUFACTURING SALES: *U. S. Office of Business Economics*, data prior to 1929 from Kuznets "National Income and Its Composition"; total of all manufacturers' sales.

INVENTORIES 27. RETAIL INVENTORIES: *U. S. Office of Business Economics*; book value at end of period—28. WHOLESALE INVENTORIES: *U. S. Office of Business Economics*; book value at end of period—29. MANUFACTURING INVENTORIES: *U. S. Office of Business Economics*; data prior to 1929 from Kuznets "National Income and Its Composition"; book value at end of period.

FEDERAL 30. FEDERAL RECEIPTS: *U. S. Treasury Department*; annual totals are for fiscal years, quarterly totals are for calendar quarters—31. FEDERAL EXPENDITURES: *U. S. Treasury Department*; annual totals are for fiscal years, quarterly totals are for calendar quarters—32. GROSS FEDERAL DEBT: *U. S. Treasury Department*; annual figures are at end of fiscal years, quarterly figures are at end of calendar quarters.

FINANCE 33. CONSUMER CREDIT: *Federal Reserve Board*; total consumer credit outstanding at end of period—34. LOANS OF COMMERCIAL BANKS: *Federal Reserve Board*; volume of loans outstanding from all commercial banks at end of period—35. CURRENCY OUTSIDE OF BANKS: *Federal Reserve Board*; volume outstanding at end of period—36. DEMAND DEPOSITS ADJUSTED: *Federal Reserve Board*; total at end of period excluding interbank and Government deposits and cash items in the process of collection—37. COMMERCIAL LOAN RATES: *Federal Reserve Board*; annual rates on short-term loans in 19 cities including New York.

FAILURES 38. BUSINESS FAILURES: *Dun & Bradstreet, Inc.*; total number of industrial and commercial failures—39. LIABILITIES OF FAILURES: *Dun & Bradstreet, Inc.*; total current liabilities excluding long-term publicly held obligations.

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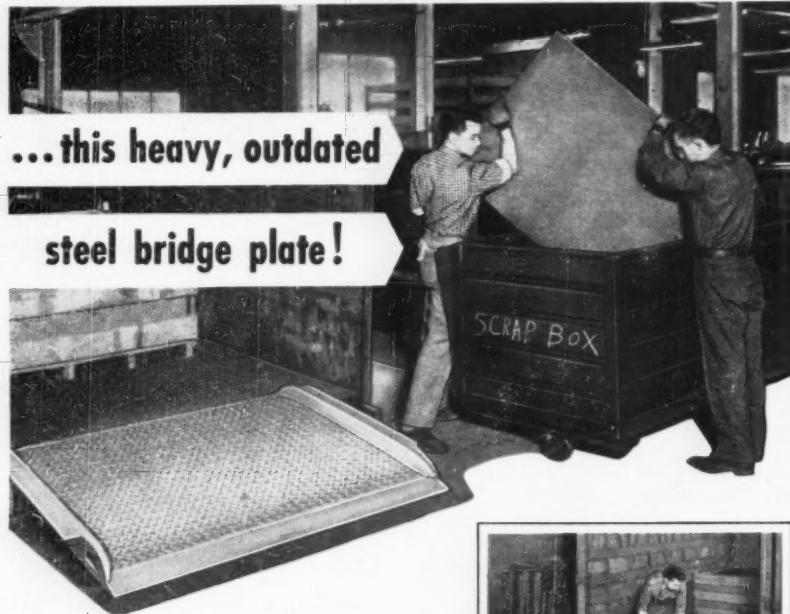
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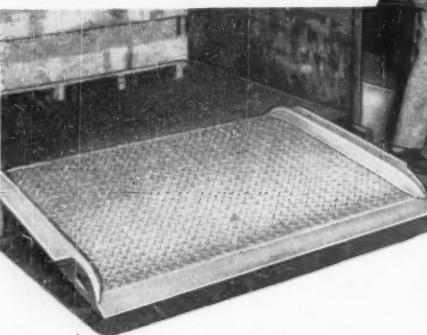
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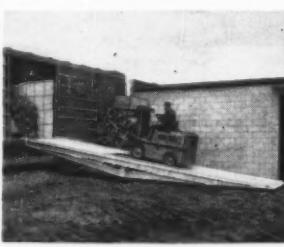
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*Vice President, E. I. du Pont de Nemours & Co., before Members Council
New Orleans Chamber of Commerce.*

Our enemies know well the importance of productive capacity in the world to-day, and against American industry they have sought to bring two powerful weapons—ignorance and lack of understanding. The American people must recognize the true source of their economic security and the

part that industry plays in it. Unless they guide their efforts so that this security can be cultivated and protected, they are in peril of defeating their own ends. If, in their confusion, they unwittingly do things that hamper and stultify the true source of security, the result could be so disastrous that there would be security for no one. The economic laws, like the laws of nature, have no regard for motive. They function inexorably to penalize those who violate them, regardless of intention, and regardless of whether the violation comes through wilfulness or ignorance. The tragedy would be no less complete because those who brought it about were seeking the exact opposite result. Industry has been guilty of the sin of omission with respect to acquainting people with the facts. Some politicians, intellectuals, and labor leaders have been ham-

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After these preliminaries we can help you set up a *continuing program* for dermatitis control. Provide leaflets and posters to help educate employees. Assist you in choosing the particular products from West's broad line that will best apply to your situation. At the right are a few examples.



42-16 West Street, Long Island City 1, N. Y.

West's broad line of products includes not only cleaners, soaps, and protective creams but also washroom service . . . disinfectants . . . deodorants . . . insecticides . . . floor maintenance materials. West is also the exclusive distributor of Kotex Sanitary Napkins sold through vending machines.



Let's see how WEST products control dermatitis

West's complete line of sanitation products includes hand cleaners, protective creams, antiseptic soaps and protective garments. Everything you need for effective control of dermatitis. Here are a few of them.

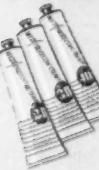
LAN-O-KLEEN

 is a heavy duty powdered hand cleaner. Contains a relatively high percentage of "free" lanolin, the emollient lecithin, soap, and balanced alkalis blended together by a secret process in a fine corn meal base. Provides both super-fattening and effective cleaning.

ANTISEPTIC SULPHO HAND CLEANER

 contains bacteriostatic properties. Will not defeat the skin. Excellent skin cleaner even for sensitive hands. Offers protection against many harsh chemicals and other materials used by people in industry and institutions.

ANTISEPTIC PROTECTIVE CREAMS

 contain bacteriostatic properties. Formulated to provide protection against almost every occupational hazard. Used by thousands of workers throughout the United States and in Canada.

WANT DETAILS?

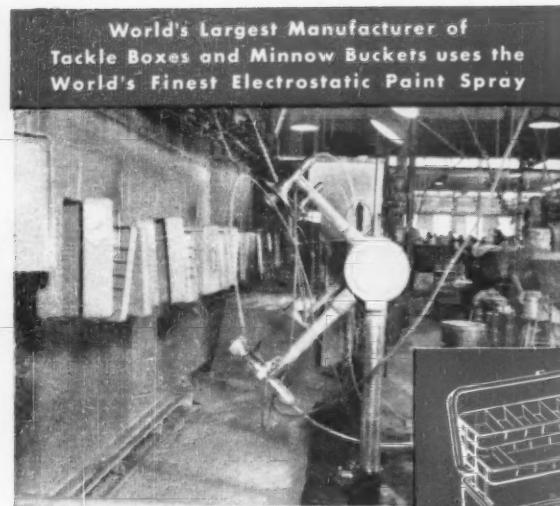
**Tear out this coupon and
mail with your letterhead**

Dept. 1

I'm interested in:

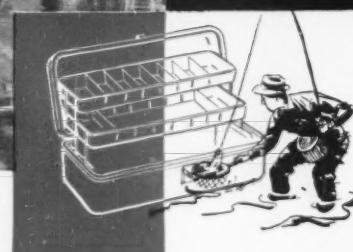
- A FREE booklet packed with information on dermatitis and helpful tips on skin care.
- A talk with a West specialist about my dermatitis problem. No sales pitch. No obligation. Just discussion, a look at samples, and a demonstration if I want it.





Four 3" Atomizing heads are used in the Ransburg No. 2 unit to paint fishing tackle boxes in the Stratton & Terstegge plant in Louisville, Kentucky.

THE RANSBURG NO. 2 PROCESS



Stratton & Terstegge Co., Inc., in Louisville, is the world's largest producer of fishing tackle boxes and minnow buckets. Their products—in a variety of styles and finishes—are sold under the trade names of "My Buddy" and "Falls City."

Originally, the company hand sprayed both exteriors and interiors of the tackle boxes. Then, in 1947 efficiency was stepped up when they installed a Ransburg No. 1 Process to coat the box exteriors.

Now, Stratton & Terstegge uses the Ransburg No. 2 Electrostatic Paint Spray which enables them to achieve even further efficiency. Paint savings amounts to 25%, and production is increased 10% with the Ransburg No. 2 over the No. 1 Process! Rejects are practically nil . . . quality of the work is improved . . . clean up time and maintenance is cut to a minimum . . . there's no compressed air to worry about, for the paint particles are electrostatically atomized with the Ransburg No. 2.

Although labor and material costs have increased substantially the past two years, the improved and more efficient plant operations have enabled this company to continue to produce their products at NO increase in price to the ultimate consumer.

Want to know how the Ransburg No. 2 can help cut costs in your painting department and still provide a higher quality and more uniform finish? Write for our brochure which shows numerous on-the-job examples of the Ransburg No. 2 Process.

Ransburg ELECTRO-COATING CORP.
Indianapolis 7, Indiana



mering at the rank and file of Americans for decades, pounding home the idea that the two best friends the average man has are the Government and the labor unions. At the same time they stigmatized industry as selfish, predatory, and basically anti-social. The battle was allowed to go by default, even though the facts lay on the side of industry.

If all of us will create local understanding of what we are doing—how we do it—why we do it—and make clear who profits thereby—the cumulative effort will be irresistible. The situation demands the best efforts of all of us.

The need for an atomic philosophy



" . . . it has presented us with the key to a 'Pandora's Box'."

JOHN JAY HOPKINS

Chairman of the Board and President, General Dynamics Corporation, before Economic Club of New York.

The atomic age provides us not only with an "Open Sesame" to the treasure house of the world's natural wealth—with classic irony, it has presented us also with the key to a "Pandora's Box" of the world's ills and evils. We already have in being a rapidly growing atomic technology. We are beginning, though somewhat faintly, to foresee the economy of this new era. But we lack a vigorous exposition of the philosophy of the atomic age.

Confronted with the dissolution of traditional physical forms, the pulverization of matter, and the need to understand our new world not as a world of things and events, but as a universe of infinite and fluid relations, the danger is that we may lose entirely any sure sense of being in touch with reality. We may, indeed, under a panic urgency to "do something"—do anything, and so precipitate disaster.

(But) let us not be discouraged by the complexities of the current but only apparent transmutation of our physical world, but rather let us be encouraged by the boundless opportunities, the limitless possi-



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Free! Fire "DANGERater" tells in 30 seconds if your safe would incinerate your vital records . . . put you out of business!

Easy to use. Accurate. Authentic. Based on thousands of fires. Figures in over a dozen vital factors about your business. Dials answer, which may save you from ruin. Mail coupon for "DANGERater" now. Tomorrow might be too late!

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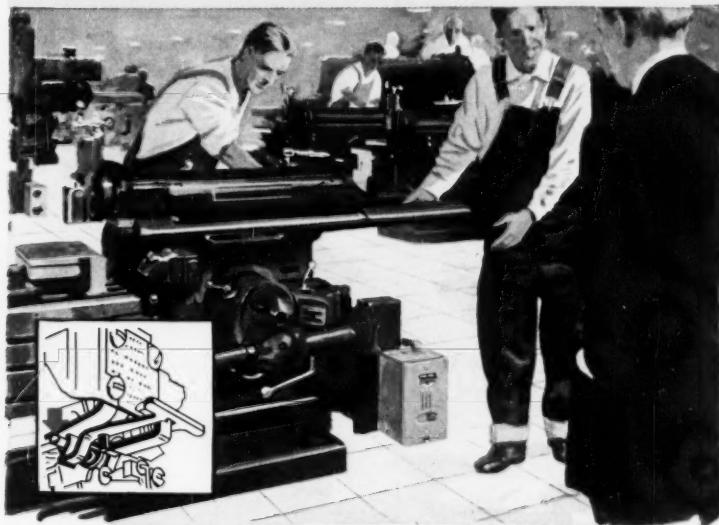
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THE THREE CUTLER-HAMMER STARS ★ ★ ★ STAND FOR THREE NEW STANDARDS

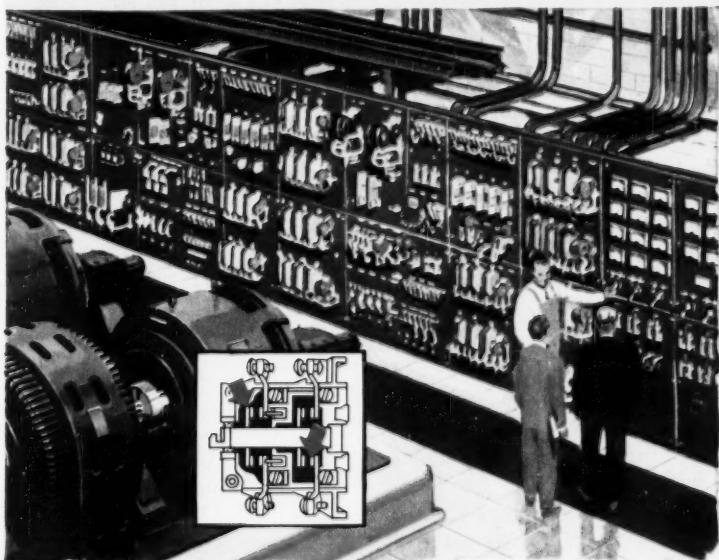
Rolling bearing action...

The proper performance and useful life of all modern machines demand anti-friction bearings. Motor control is no exception; it too must have good bearings to avoid wear and trouble.



Dust-safe vertical contacts...

Experienced engineers know vertical contacts work better and last longer because they stay clean, shed dust, do not collect it. Pressure arc quenching is important new C-H feature.



Cutler-Hammer Motor Control has always been respected for its long life. It has frequently been chosen for industry's "killer" jobs by comparative test. Many users say, "I have never seen a Cutler-Hammer starter wear out." Yet the new Cutler-Hammer ★★★ Motor Control has *three times* the life of the good equipment it replaces! Nearly unbelievable, but it IS true. Now motor control you can install and forget! Try it. Prove it. Your nearby Cutler-Hammer Authorized Distributor is ready to serve you. Order from him today. CUTLER-HAMMER, Inc., 1436 St. Paul Avenue, Milwaukee 1, Wisconsin.

★ *installs easier*
★ *works better*
★ *lasts longer*



Less bounce by the ounce...

Research showed contact bounce caused arcing, that reduced weight in moving contact members cut bounce and arcing. So new light-weight parts now remarkably lengthen contact life.



CUTLER-HAMMER ★★★ MOTOR CONTROL



Rotor revolves on this exclusive case-hardened hollow-steel shaft forming a virtually wear-proof bearing.

Will it last forever?...we don't know, yet!

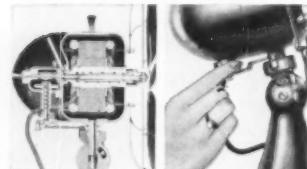
The stationary hollow steel shaft, *exclusive* in Emerson-Electric 12" and 16" oscillating fans, is one of the main reasons why you can find these fans still "blowing strong" years beyond their 5-year guarantee.

The unique single bearing formed by the case-hardened steel of this shaft and the porous cast-iron of the rotor core is the secret to such long life: with "forced feed" lubrication the surfaces of both acquire a fine glaze, like plated metal, which makes practically an ever-lasting bearing.

As a result, many of these fans are still in service after 25, 30 and even 40 years, making Emerson-Electric oscillators by far your best buy on cost-per-year basis.

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St. Louis 21, Mo.

Forced feed lubrication — spiral oil grooves in the rotor core and spiral oil conveyor attached to floating worm shaft continuously circulate oil over bearing surface.



Fingertip oscillation adjustment — simply "dial" any "sweep" from 90° to stationary.



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bilities, the marvelously expanding horizons of this new and still unfolding revolutionary atomic age.

Atomic energy taunts us with ideas of new world horizons. The challenge and the opportunity for world leadership are clear—but do we have the wisdom and the initiative and the daring to rise to meet them? And if we do not, we must then ponder the question—who might?

Managerial freedom for economic success



"Undue constraints diminish the capacity of industry."

EDWIN J. SCHWANHAUSER

Executive Vice President, Worthington Corporation, before Junior Executive Development Conference Series, Newark, N. J.

Managements must be free to use their energy, judgment, enterprise, imagination to the maximum. Undue constraints by government, by organized labor, by local communities, by shareholders—and note I say "undue" constraints—diminish the capacity of industry to deliver for the national good. Capitalism is bad because it limits the abilities of management and in the end produces incompetent managers. Socialism is bad for the same reason. The Russians are beginning to realize that Communist dictatorship is stultifying, too.

It is abundantly clear that the competitive, freely enterprising manager, using research to find new opportunities, using his native willingness to scrap the old for the sake of the new, the more efficient, and the better, accepting calculated risks for the sake of great rewards, has performed industrial miracles for the one nation where these forces have been freely employed; The United States of America. We have magnificent resources but these alone cannot explain our position to-day. It is released energies of our people that account for our great achievements. After all, a raw material is nothing until someone has devised a use for it.

ONE QUICK
STROKE!

Your load's ready
to **ROLL** . . .

with these Two New
Weld-Bilt Time-Savers

NEW "PAL-BOY"
SINGLE STROKE MECHANICAL LIFT PALLET TRUCK

Amazingly easy to handle, lighter, smooth-rolling, new low-priced "Pal-Boy" is a great time-saver on single or double pallet loads up to 2500 lbs! ONE swift handle-stroke lifts your load to rolling position. New ball bearing booster rollers on each fork simplifies positioning under pallets. Has many new safety and load-saving features.



NEW "LO-BOY"
MECHANICAL SINGLE STROKE LIFT TRUCK

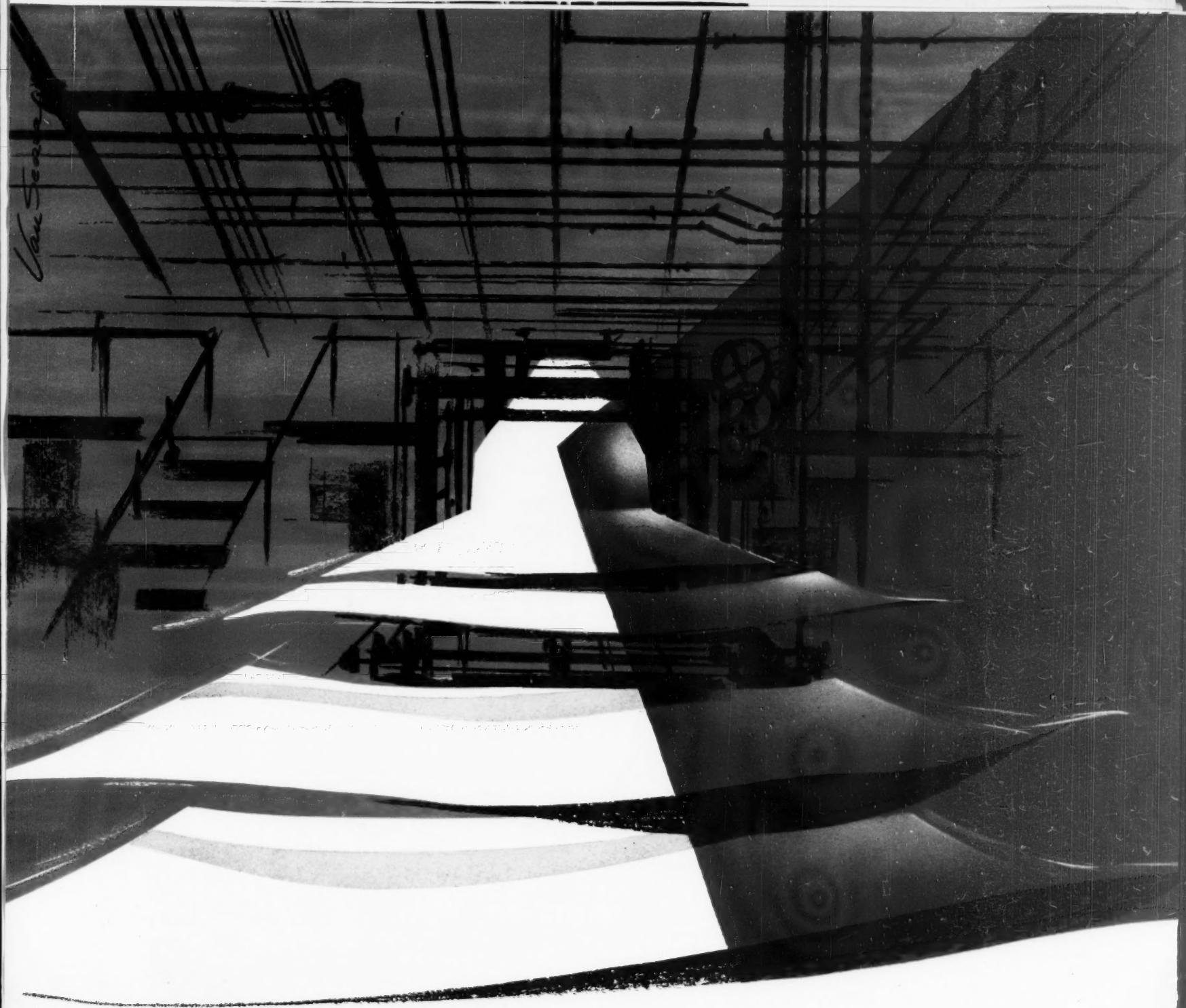


WIRE or write for new bulletin and low prices on these new Weld-Bilt SINGLE STROKE time-savers.

WEST BEND EQUIPMENT CORPORATION

Materials Handling Engineers

303 WATER STREET, WEST BEND, WISCONSIN



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One of many instances of this in Clement's four printing plants is a press so adaptable that a wide variety of jobs can be speeded through it to keep it productive 'round the clock. It prints in one, two, three or four colors, delivering 128-

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Subsidiaries: Pacific Press, Inc., Los Angeles. Phillips & Van Orden Co., San Francisco



8 LORD STREET, BUFFALO, N.Y.



243 ERIC STREET, BUFFALO, N.Y.

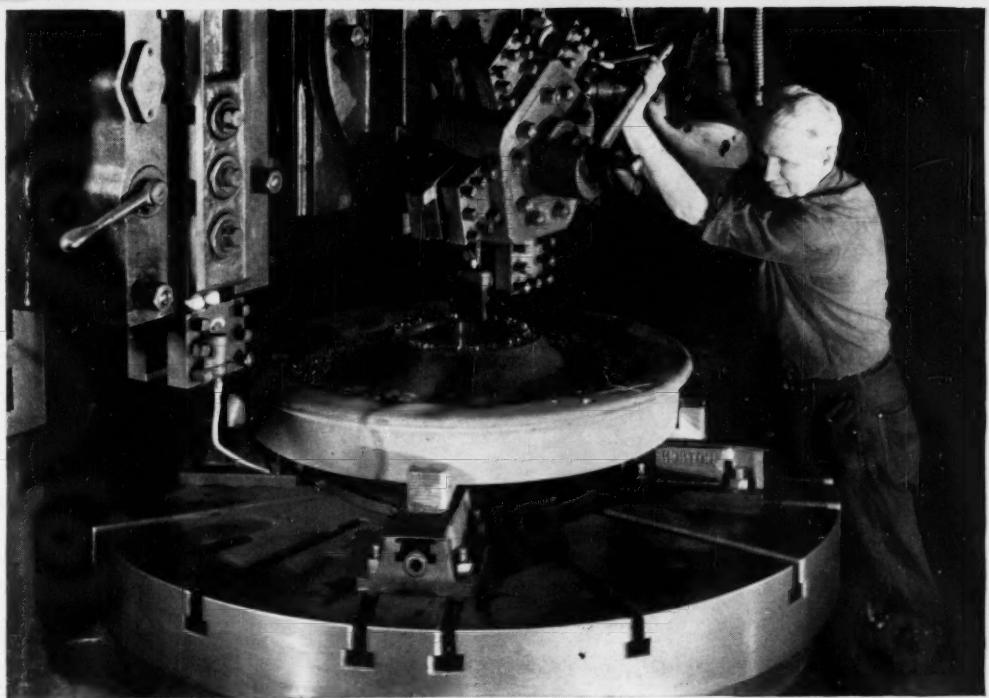


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DEVANEY PHOTOGRAPH

MORE COMPANIES

EACH YEAR ARE FACING THE DECISION OF WHETHER TO BUY OR LEASE CAPITAL EQUIPMENT. OF NECESSITY, EACH MUST ASCERTAIN THE ADVANTAGES AND DISADVANTAGES IN THE LIGHT OF ITS OWN PRODUCTION AND CAPITAL DEMANDS. BUT WHAT ARE THE POINTS THAT MUST BE CHECKED AND HOW ARE THEY TO BE EVALUATED? THIS ARTICLE ATTEMPTS A SEARCH INTO THE VARIOUS PROPOSALS AND THE POSSIBLE EFFECTS.

Equipment Leasing: PRO or CON?

I. WAYNE KELLER
Controller, Armstrong Cork Co.

FOR THE first time in a number of years the productive capacity of industry in the United States is adequate to meet all foreseeable consumer demands. The buyer's market has returned. This change in the business atmosphere calls for a re-examination of many management policies and decisions, and important among these is the answer to the question, "Shall we lease or buy equipment?"

To-day, equipment-leasing plans are being promoted aggressively by both "rental" companies and by manufacturers and dealers. Obviously, the rental companies are being operated to earn a profit. The manufacturers and dealers who offer their products for lease, as well as for purchase, hope to achieve greater unit volume in addition to realizing an increment of profit on their leasing service. However, all lessors are performing a service which is of value to some lessees under certain conditions.

Each prospective lessee must study the advantages to him of leasing or purchasing equipment under current business conditions. Such studies will, in part, be based on measurable factors such as relative costs. In part they will be based on opinion and forecasts, such as the future requirements for working capital.

The first step is to determine that a proposal to lease equipment calls for leasing in fact as well as in name. The proposed lease agreements contain widely different terms, depending upon the type of equipment offered for lease and the

lessor's methods of operation. Some proposals are simply the familiar lease-purchase contracts under which, after a specified number of stated payments, title to the equipment passes to the lessee. Others are found to propose a rental for a term of years which approximates the useful life customarily assigned to such equipment. Under these, there is a clause granting the lessee the right to purchase the equipment at a nominal price upon the expiration of the lease.

However, plans providing for title to the

equipment to pass to the lessee are suspect regardless of the terms or timing. This position is taken because the allowability of rentals under these as a cost for income tax purposes is considered to be very questionable. Also, treatment in the financial statements of the values of such equipment and the rentals to be paid on it presents many problems. Such values would probably have to be shown as an asset.

Bulletin No. 38 of the Committee on Account-
Continued on page 56

MACHINE TOOLS

Comparative Annual Costs per \$10,000 of List Price if Purchased or Leased

Year of Use	Average Book Value	ANNUAL COST IF OWNED				ANNUAL COST IF LEASED			
		Depreciation	Insurance	Interest on Average Book Value @ 3½%	Total	Total After Tax at 52%	Rental Before Tax	Rental After Tax at 52%	Net Profit Advantage of Ownership
1	\$9,667	\$ 667	\$ 36	\$ 338	\$1,041	\$ 500	\$ 3,900	\$1,872	\$1,372
2	9,000	667	36	315	1,018	488	3,000	1,440	952
3	8,333	667	36	292	995	477	2,100	1,008	531
4	7,666	667	36	268	971	466	1,600	768	302
5	6,999	667	36	245	948	455	1,200	576	121
6	6,332	667	36	222	925	444	800	384	-60
7	5,665	667	36	198	901	432	500	240	-192
8	4,998	667	36	175	878	421	360	173	-248
9	4,331	667	36	152	855	410	240	115	-295
10	3,664	667	36	128	831	399	100	48	-351
Total 10 Years	\$6,670	\$360	\$2,333		\$9,363	\$4,492	\$13,800	\$6,624	\$2,132

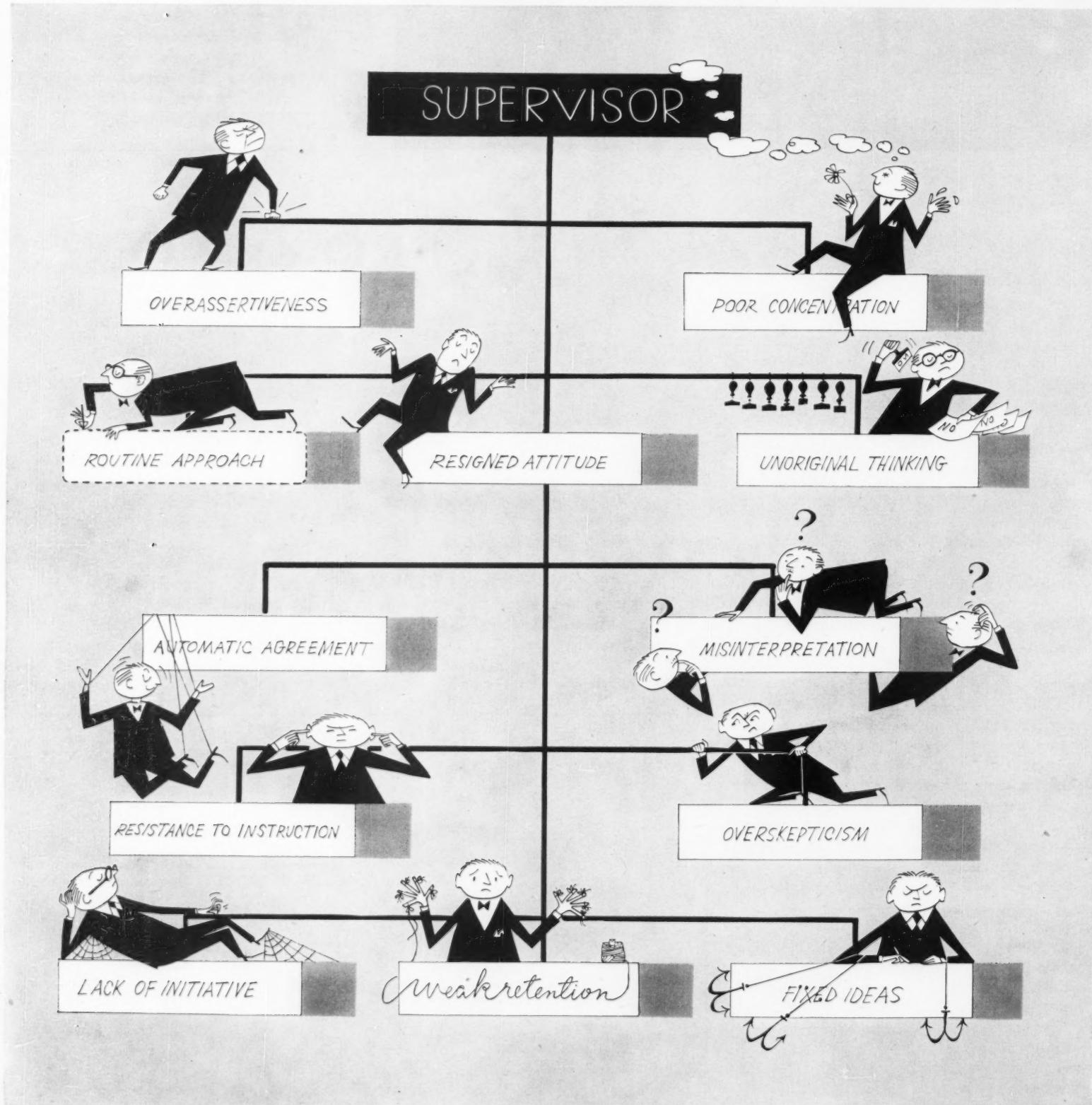
Which Traits Plague Your Men?

Below are some typical obstacles to learning. How many trip your own subordinates?



... and then

START READING



AVAILABLE: *Sharper Wits*

Here's the way an executive helps muddled subordinates grasp ideas more quickly and more firmly.

MARGARET L. JONES
Executive Methods Editor

TRAINING won't train—in more cases than management stops to think about. Whether training be a formal or informal process, applied to many people or one person, guided by numerous staff training men or a sole line executive, it is undertaken to improve and change the individual.

But does it? Before you read further, check your subordinates' propensities for the human failings charted opposite. Then ask yourself if group training or individual coaching in their cases has been as helpful as you like to think.

In business, the objective of training must be to make an employee a better doer. He can be a walking encyclopedia, but unless his knowledge produces an insight into cause and effect, he will do some pretty dull-witted things from the viewpoint of stockholders and management. Within the ivy-bare walls of our industrial world, a high or low IQ is rightly defined by what an individual does, "for he who can and doesn't is just like he who can't."

Why is it that some executives are haunted by an intelligent subordinate who can—but doesn't? Why won't training stick to him? Why does he seemingly wish to frustrate his superior, balk change, and resist learning? To view this management problem properly, it is well to reconsider the process by which learning takes place.

Some of what follows below to explain this process is prompted by interviews with three training experts: Dr. Charles E. Bish, Associate Professor of Education, George Washington University; J. J. McCarthy, consultant, employee-relations training, General Electric; and Dr. Walter Mahler, president, Mahler Associates, management-development consultants.

The learning process, for anyone, takes place on levels. The deeper the levels go, the more chance a trainer has to affect the trainee's attitudes, values, and behavior—to change him, in other words. Over at General Electric, they express it something like this:

An employee is *told information*. He reacts

politely to it because he *respects the teller's experience*. He achieves a *surface understanding* of this knowledge, but *he does not change his behavior*. This is what happens on the first, or top, level of learning. At this point, a trainer has only started to train.

At the level beneath this one, an employee learns by *discussing information*. He *reacts with interest* because he *respects the teller's ideas* as well as his experience. This brings about a *deeper understanding* which causes him to *relate properly his data*, one with the other. Now the trainer has made a little progress.

Next, the employee reaches a level of learning where he can *refine his information* through the sieve of experiences and interpersonal relations. He experiences an *even deeper understanding* that gives him *insight to cause and effect*. He is beyond mere politeness or interest. His *reaction by now is one of motivation*:

He says, "I see what you are driving at"—and he does. With this reaction comes *respect for the trainer's motives*, besides the previous regard for his experience and ideas. The trainee glows with his new-found perception. His boss shines too, having at last found a younger brother under the skin.

The catch is, of course, that many superiors and subordinates don't arrive at this happy destination together. The subordinate gets lost somewhere in the process. As far as this man's superior can tell, any one of many human failings could have thrown him off:

A tendency toward poor concentration, for example, overskepticism, fixed ideas—or any one of the other mental obstacles to learning, opposite, that you checked off two minutes ago.

Consider one of these obstacles—the routine approach. Everyone knows that a man who relies on it robs his endeavors of the creativity necessary to produce top-grade management work. If Joe wants to lower his IQ, all he has to do is jump through a hoop eight hours a day.

Actually though, is it Joe's unawareness of this fact that retards his progress in the office? Or

is he slow to create because of his boss?

The superior who says "Look, Joe, you are on your own in this situation, see what you can do," and then leaves him alone, is a rare leader among the many who follow up this invitation to creativity by getting Joe to do it *their way*, in the end.

Because of to-day's tendency to routinize *even on the management level*, men work, points out Dr. Charles Bish, not faster and not slower, but with a predetermined rhythm set by the company for which they work. Therefore, a prime responsibility of supervisors nowadays is to keep the company's "rhythm" from draining subordinates of creativity. But how many management men *personally* spend time enough fulfilling this responsibility to be able to say: "I did not put that obstacle to learning in Joe's way. He did it himself."

Almost nothing reduces the ability to learn more than a resigned, what's-the-use attitude. What's the matter with Joe anyway, that he doesn't bother to care? A doctor would ask him where he hurts; but a busy supervisor tends to make a one-way diagnosis more often than not: "Old Joe hasn't what it takes, I guess," or, "Poor Joe, he's too old to develop further."

Is Joe too old to learn new tricks? (Dr. Robert Ladd Thorndike's research experiments in adult education indicate that the ability to learn and to modify attitudes extends well beyond the school and college years. In fact, learning capacity does not reach its peak, according to the Thorndike Learning Curve, until the age area between 22 and 26. From here on, the top of the curve descends very, very little as the age increases.)

Since Joe is not too old after all, the supervisor's job is to find out where he hurts. To do this, the supervisor has even been given a method by scientific management: The counselling of subordinates after merit rating and evaluation.

The crux of the matter then is, how many or how few managers counsel personally, conscient-

tiously, and continually. Of the many possible counsellors, a large group of bosses prefer to "keep Joe on his toes" by making him guess how well, or how poorly, he is doing. Many more consider it adult to dismiss counselling as "childish." Joe is a grown man; he knows in which direction his performance is headed.

So Joe is confronted with a boss who establishes no pattern of personal reactions toward him. *Joe does not know where he stands.* Yet the very intangibility of management work, the slowness with which events may move to prove an executive's decision right or wrong, puts a high premium on the superior's effort to indicate that he thinks, because of his longer experience, that the subordinate is, or is not, on the right track. The subordinate, otherwise, may give up trying to profit from experience. He's "resigned."

But which has interfered with the learning process, the man's attitude or his boss's behavior? Similar questions may be asked whenever subordinates tend to the following:

Lack of initiative; unoriginal thinking. How many superiors manage to resist telling their men how to correct what they point out is wrong? If they don't, no one will try to think through a situation; all energy is focused instead on figuring out how the boss figures it.

Fixed ideas; automatic agreement. Though outwardly so different, both tendencies grow, don't they, in any place which won't tolerate mistakes? Yet, it is commonly agreed that mistakes shake up fixations which everyone inevitably brings with him from past experiences, training, and relationships. And it is also agreed that fear of a mistake coddles a "yes" man, when he is made to feel that one will cost him his livelihood.

Overassertiveness; overskepticism. Both are symptoms of a man's rigid need to defend himself. They also can be signs, can't they, that his work environment is insufficient to care for the normal human needs of security and status?

Resistance to instruction. It exists instinctively in everybody because it generally heralds change; and change suggests, "The old man's unhappy with what I am doing." The feeling of being threatened that results is motive enough to resist, as anyone knows.

But how careful is each supervisor to avoid this threatened feeling by giving advanced enough notice and sufficient reasons for the instruction? With how much personal interest does he convince a man that the instruction is part of a plan, formed for his own good?

More of such questions could be asked, if we continued to run down the list of human failings diagrammed on the other page. Obviously, however, each one would simply serve to re-emphasize the management fact that erupts as consistently as Yellowstone's Old Faithful—the fact that the pattern of behavior a supervisor follows can make, or break, a normally healthy and intelligent subordinate's progress.

In this particular case, the fact is illustrated

by the subordinate's learning process. He can come to a dead stop at any one of the levels of understanding discussed because a superior, not he himself, is responsible for the retardants that make him seem muddled. Most times, these retardants are overcome when the executive persistently finds time to perform functions that he already knows about. (See box below.)

There is still one more facet of the learning process to be considered, if training is to train. This is the shaking up of values. Though new perception is found by absorbing information through listening, discussing, and experiences, values can remain unchallenged.

So far, the man has applied his awakened perception to the other fellow's way of doing things. His concept of his own performance is still unshaken. But when perception gets under his skin enough to make him question his values, then the trainer is really beginning to make some interesting things happen, say the experts. The critical area of training behavior has been reached. Unfortunately, too many coaches stop short of this area, fooled by a sense of intimate harmony now established.

General Electric calls it the "Ouch!" area. "Ouch," the trainee cries, "I'm the guy you have been talking about. Say, are you trying to push me around after all!" Then he begins to exhibit escape behavior. He bucks, and disputes what he recently accepted: "Well, I agree with everything you've said, but there are exceptions. Now, take a type like Jay Silvers; my experience shows you have to treat 'em like this . . ."

Escape behavior takes many forms. The important thing is to recognize it for what it is, to help the "rebel" save his face as he makes himself take this last, cold plunge into learning.

"Getting escape behavior patterns into the open," says Dr. Charles Bish, "is the grandest thing in the world. Don't be upset by them. People are beginning to feel the things you are teaching."

From here on in, the executive can get new values accepted, new attitudes created, and changes in behavior. He need not be, and should not try to be, a psychologist. But let him spend enough time on the human-management part of his responsibilities, and he will find that sharper wits are easily available for the picking.

HERE ARE SOME MENTAL LIFTS

YES NO

When a subordinate disagrees with you, do you help him to state his position as clearly and strongly as it can be made?

If "yes," you are working to understand him, and resolve the differences. In such cases, differences then provide the chance for progress, instead of an opening for a fight.

Do you encourage discussion groups where a subordinate feels free to state his beliefs, information, and attitudes?

If "no," you are missing a chance to train him through the group interpersonal process. His educational process, like everyone's, depends completely on the way his own experiences and fixations cause him to interpret what you want him to do. Widen the framework of his experiences by exposing them to the group's variety of attitudes, and you widen his understanding, thus increasing your chances to change his behavior.

As you listen to what a subordinate says, are you actively appreciative of his differences in background, experiences, and motives?

Polite listening and appreciative listening are poles apart. With the former, the listener merely waits in silence for the other person to stop talking in order that he, himself, can start to speak and to establish his own status. This kind of listening does not cause purposefulness to emerge from discussion. Purposefulness emerges only when listening conveys appreciation of human differences, and a rapport that makes the establishment of status unnecessary.

Do you encourage, rather than squelch, the differences of each member of your team in opinion, background, attitude, and values?

Group progress flourishes in face of significant differences. A group with one mind no more thinks than a man with one idea, Dr. Bish cautions. Minds that think alike, cannot think together.

ON MAKING DECISIONS

PART VII OF

The Practise of Management

PETER F. DRUCKER

Decision-making actually has five distinct phases:

-Defining the problem
-Analyzing the problem
-Developing alternate solutions
-Deciding upon the best solution
-Converting the decision into effective action

Each phase has several distinct steps.

sure that decisions reached in various parts of the business, and on various levels of management, are compatible with each other, also consonant with the goals of the whole business.

Practically no problem in life—whether in business or elsewhere—ever presents itself as a “case” on which decisions can be taken. And so the first job in decision-making is to find the real problem and to define it.

What appears at first sight to be the problem rarely are the really important or the really relevant things. They are at best symptoms. And very often the most visible symptoms are the least revealing ones. Management may see a clash of personalities; the real problem may well be poor organization structure. Management may see a problem of manufacturing costs and start a cost-reduction drive; the real problem may well be poor engineering design or poor sales-planning. Management may see an organization problem; the real problem may well be lack of clear objectives. And so on.

One can scarcely spend too much time on this phase of decision-making. The books and articles on leadership are full of advice on how to make fast, forceful, and incisive decisions. But there is no more foolish—and no more time-wasting—practise than to decide quickly what a problem really is.

The manager cannot rely on symptoms or on experience to define the problem. He must not base important decisions on “intuition.” He needs a strict method. He must analyze the problem rather than diagnose it.

There is only one such method: the definition of the problem by finding the “critical factor.” This is the element (or elements) in the situation that must be changed, moved, acted upon before anything else can be changed, moved, acted upon.

For example, I recall that a kitchenware manufacturer for ten years bent all management energies toward cutting production costs, to no true improvement in profitability. Proper analysis showed that the real problem was the product-mix sold. The sales force put all emphasis on the most obvious sales appeal, lower price. As a result, the company sold more and more of the

*W*HATEVER a manager does, he does it through making decisions. Those decisions may be made as a matter of routine, with the manager sometimes quite unaware that he is making decisions. Or they may affect the future existence of the enterprise and require years of systematic analysis. But management is always a decision-making process.

The importance of decision-making in management is generally recognized. A good deal of the discussion, however, centers on “problem solving,” on giving answers. And that is the wrong focus. For there are very few things as useless—if not as dangerous—as the right answer to the wrong question.

It is also not enough to find the right answer. Much more important and much more difficult is to make effective the course of action decided upon. Management is not concerned with knowledge for its own sake; it is concerned with performance. Nothing is as useless, therefore, as the right answer that disappears in the filing cabinet, or the right solution that is quietly sabotaged by the people who have to carry it out to make it effective. And one of the most important and most difficult jobs in the entire decision-making process is to make

less profitable lines, where its competitors made the least effort. And, as fast as it reduced manufacturing costs, it cut its price. It gained greater sales-volume; but the gain was pure fat, rather than growth. In fact, the company became progressively more vulnerable to market fluctuation. Only by defining the problem as one of product-mix could it be solved at all. And only by asking, "What is the critical factor in this situation?" could the right definition of the problem take shape.

An additional step in the definition of the problem is to define the conditions for the solution of the problem.

First the objectives must be thought through: What should the solution accomplish? The objectives should always reflect the objectives of the business, should always be focused ultimately on business performance and business results. They should always balance and harmonize the immediate future and the long-range future. They should always take into account both the business as a whole and the activities needed to run it.

At the same time, the rules that the solution has to observe must be thought through. What are the principles, policies, and rules of conduct that have to be followed? It may be a rule of the company never to borrow more than half its capital needs. It may be a principle never to hire a man from the outside without first considering all inside managers carefully. It may be established policy that design changes must be submitted to manufacturing and marketing before being put into effect by the engineering department.

Spelling out the rules is necessary for two reasons. To begin with, the right decision in many cases will require changing accepted policies or practices. And unless the manager thinks through clearly what he wants to change and why, he will not normally come up with a clear decision. He will be in danger of wanting both to change established practice and to observe it. And that attempt always leads to confusion.

More important is the second reason: the "rules" I have mentioned actually constitute the value-system within which the decision has to be made. Then values may be moral; they may be cultural; they may be company goals or accepted principles of company structure. In their entirety they constitute an ethical system. Such a system does not decide what the course of action should be. It only decides what the course of action should not be. Management people often imagine that the Golden Rule is a rule of action. They are wrong; the Rule only decides what action should not be taken. Elimination of the unacceptable courses of action is, however, an essential prerequisite to decision. Without it there will simply be so many courses of action to choose from as to paralyze the capacity to act.

The next phase in decision-making is analyzing the problem. It has two steps: classifying the problem and finding the facts.

It is necessary to classify the problem to know who has to make the decision, who has to be consulted in making it, and who has to be informed. Without prior classification of the

problem, the effectiveness of the ultimate decision is seriously endangered. For classification alone can show who has to do what in order to convert the decision into effective action. Classification, too, brings out what facts are needed and in what areas. For classification shows what areas will be affected by the decision.

The principles of classification are: one, the futurity of the decision (the time space for which it commits the business to a course of action and the speed with which the decision can be reversed); two, the impact of the decision on other areas and functions; and, three, the number of qualitative considerations that enter into it. We need add here only that it is this classification—and this classification alone—that can insure

that a decision really contributes to the whole business, rather than solves an immediate or local problem at the expense of the whole. That is because the classification proposed here sorts out problems according to their correlation to business goals and business performance. It forces the manager who makes the decision to see his own problem from the point of view of the business.

"Get the facts" is the first commandment in most texts on decision-making. But it

cannot be done until the problem has first been defined and classified. Until then no one can know what "facts" are; there are only data. Definition and classification determine which data are relevant. They enable the manager to dismiss the merely interesting but irrelevant. They enable him to say what of the information is valid and what is misleading.

In getting the facts the manager has to ask first: "What information do I need?" He has to decide how relevant the data in his possession are, and how valid they are. He has to decide what additional information he needs and get it.

These are, however, not mechanical jobs. The information itself needs skilful and imaginative analysis. It should always be scrutinized for underlying patterns that might indicate the problem has been wrongly defined or wrongly classified. In other words "getting the facts" is part of the job only. Using the information as a means to test the validity of the whole approach to the problem is at least as important.

Take the case of the monthly trade magazine that found itself in financial difficulties. The problem was at first defined as one of advertising rates. But analysis of the facts and figures showed something no one at the magazine had ever suspected: whatever success the magazine had had was as a source of news for its subscribers. As a result of this analysis of readership figures, the whole problem was redefined: how can we become a news magazine? The solution, by becoming a weekly. It was the right solution, too.

Of course, a manager will never be able to get all the facts he should have. Most decisions have to be based on very incomplete knowledge; either because the information is not available or because it would cost far too much in time and money to

Continued on page 36

The Many Readers

who have been especially interested in this series of articles by Peter Drucker will be glad to know that the articles, somewhat amplified, will be published as a book this Fall by Harper and Brothers, New York.



Forerunners of some 1,000 visitors a week who now tour Niagara Falls hydroelectric plant of Niagara Mohawk Power Corporation, these engineers, financiers made first trip in 1897 to see what they had wrought.

OPEN HOUSE EVERY DAY:

These companies find it pays off

ALFRED G. LARKE
Employer Relations Editor

DAY IN and day out, the year around, many American industrial concerns are paying from 30 cents to more than \$6 a head for the privilege of escorting members of the American public through their plants.

Some companies are unable to assign specific costs to the activity, but those who have been queried by DUN'S REVIEW AND MODERN INDUSTRY—sponsors of the least expensive and of the costliest programs, those who don't know their costs and those who prefer not to tell—all are enthusiastic about the value of the practise.

The year-around plant tour is much older than the once-a-year open house or occasional Busi-

ness-Industry-Education Day that has grown in favor during and since World War II.

One of the old-timers, still operating seven days a week, is the guided tour of the Niagara Mohawk Power Corporation, one of whose predecessor companies began in 1897 making its Adams Station a twin attraction with the Niagara Falls themselves.

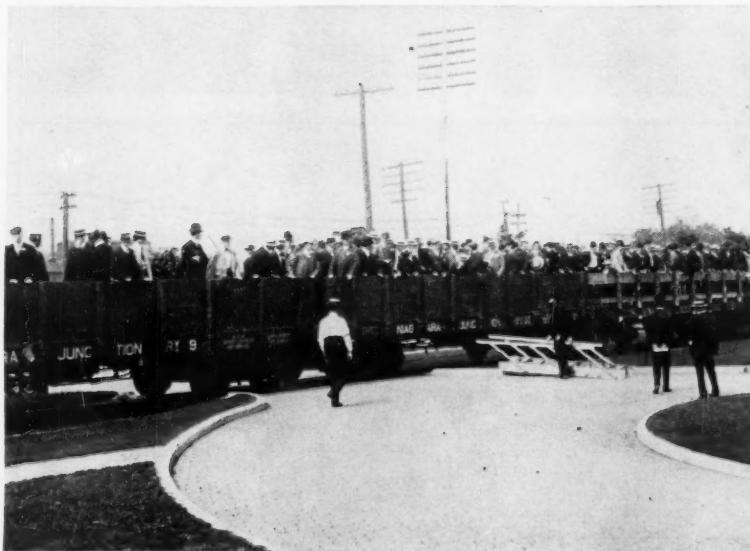
Fifty years ago, the power-plant tour did a powerful job of selling the simple idea of the use of electricity. To-day the tour concludes in a room in which is displayed a model of the proposed Niagara redevelopment project. Guests are told how five New York State private power

companies plan, if they are given the opportunity, to build a \$400 million plant downstream from the Falls. Literature is distributed explaining the five-company position for private and against public development.

Fifty-two thousand people visited the plant, saw power produced, heard the company story, in a recent 22-month period.

Access to an everchanging multitude of prospective visitors has been used to another advantage, for almost as long, by the Shredded Wheat

*Text continues on page 32
Photographs on page 30*



Tourists, honeymooners found own way to Falls plant, but special parties like conventioneering engineers got this special transportation in 1903.



To-day visitors to 600-acre plant and grounds of Lederle Laboratories Division, American Cyanamid, Pearl River, N. Y., shuttle in a tractor train.

People don't just walk in—they must be asked



Invitations to visit the Peoria, Ill., distillery of Hiram Walker & Sons, Inc., are placed in local hotel rooms (left), on main-road billboards (below), in promotional booklets, occasionally in national advertising; direct contact is made with convention groups; the sales staff, employees, the Association of Commerce convention committee, ask others. Some other companies also use school sources.

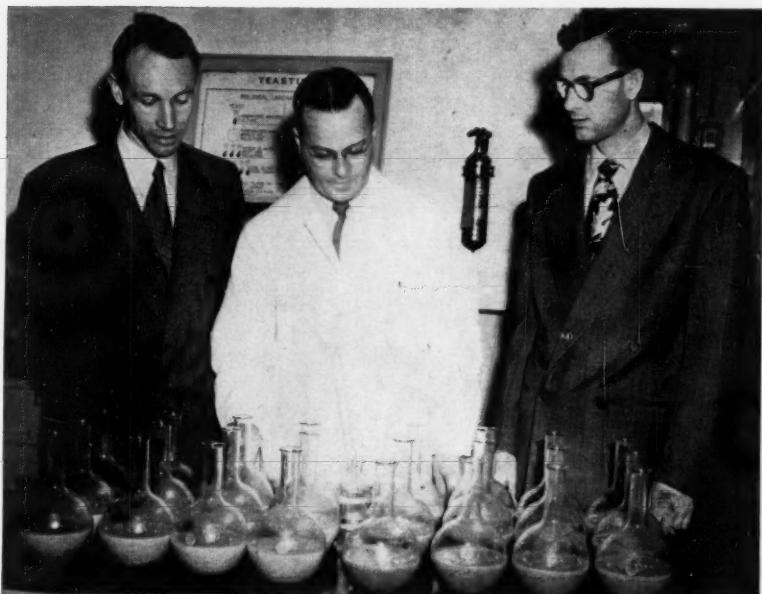


Choose guides to match the visitors



Some plants use only regular employees as guides, like the control laboratory chemist (left, above) briefing an agricultural group before a Hiram Walker distillery tour, or executive (left) welcoming Air Force men. Others, like Lederle Laboratories, have a full-time guide staff (above); too-tough questions are referred to supervisors, technicians. One large automobile manufacturing concern makes tour-guiding part of sales training for young college graduates. Miller Brewing Company, Milwaukee, Wis., has full-time chief guide, sales-trainee assistants; college students evenings. Niagara Mohawk Power Corporation supplements full-timers with school teachers week-ends, college students in Summer.

Tours can be tailored to the tourists



Hiram Walker chemist's explanation (above) of yeast cultures may delight technical men, but might bore to death a Niagara Falls tourist or casual

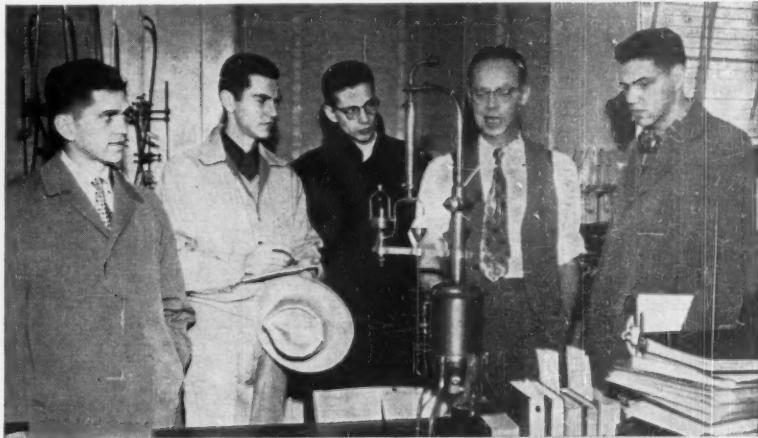


visitor on the "cat walk" (above) at Simonds Saw & Steel Company, Fitchburg, Mass. Most plants expand standard tour for special-interest guests.

Plant trips serve many purposes



Scout troops, school classes learn cost and cleanliness of milk production in Supplee-Wills-Jones Milk Company tour, Philadelphia. So do parents.



Not the product but, more likely, future employment is in minds of college students (above) studying miniature gin still at Hiram Walker distillery.



Lederle Laboratories gains interest, good will of important product-users as these Toronto, Ont., physicians inspect aureomycin fermentation tank.



At a milk plant, milk; at a brewery, beer; but at Hiram Walker, visiting Peoria business men finish trip with a choice: either hard or soft drinks.

DENISON HYDRAULIC EQUIPMENT

- Helps chew rock—a mile down
- Links 5 parts with one squeeze
- Puts new twist in ready mix



HELPS CHEW ROCK and cuts costs. In drilling oil wells, shocks from hitting bedrock damaged bits, caused power-drive failures. But, with Denison hydraulic motors now powering the rotary tables, these shocks are cushioned. Drills last longer, costs are reduced.

Denison hydraulic power is used in many other industries. It is used in the pulp and paper industry, in the steel industry, in the chemical industry, in the food industry, in the mining industry, in the construction industry, and in the automotive industry.

LINKS PARTS faster. One smooth, hydraulic stroke stakes five parts together... produces 750 door-latch assemblies an hour. Denison Multipress versatility, precision and speed enable manufacturer to produce more units in less time.



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plant at Niagara Falls, now a part of the National Biscuit Company. The company opened its doors to visitors daily in 1904, after some genius of the day had virtually built the plant around the idea of sanitary food processing.

Many-windowed, probably one of the country's first air-conditioned factories, equipped with showers for employees and staffed for the most part with women operatives in crisply laundered uniform clothing, it sold Shredded Wheat, and later Triscuits, to the consuming public by selling cleanliness.

The original bakery was closed this year and operations moved to a newer plant, but the company hopes to resume tours at the new location. Although for 50 years no Falls honeymoon had been complete without a Shredded Wheat tour, the number of visitors was still mounting last year—40,000 in 1953 against 30,000 in 1950.

Cost of all this consumer promotion, which built community good will and created a steady supply of good employees, has been about \$12,000 a year—\$500 a month in the off season, about \$2,000 a month in heavy tourist months.

The small plant in a small town off the beaten path would no doubt find the year-around, open-house idea less fruitful, and for it the occasional open house for employees, community leaders, school children, may be the way to get the most out of plant visits. Not all the companies that encourage everyday visits, however, have any natural advantages of location or interesting processes.

It is a question how many of the public would visit a saw factory or a milk-bottling plant if the trip were not proposed to them by someone, made attractive, and encouraged by the management.

Yet Simonds Saw & Steel Company in Fitchburg, Mass., is open

to visitors every weekday, although tours are made by appointment. Use of engineers, members of the Service Department, and lineheads as guides is permissible because of the lesser number of visitors, and it fits well the varying incidence of visits. There is no such need to keep a guide or staff of guides as in plants where hundreds make the tour daily. Interest is aroused by word-of-mouth reports of those who have been through, and company salesmen invite customers.

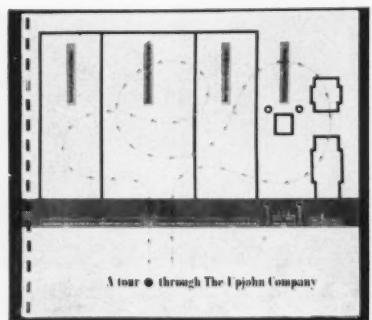
About 10,000 people a year go through the Supplee-Wills-Jones Milk Company plant in Philadelphia, at a cost to the company of roughly \$8,000 annually. Most are from the marketing area, although there are tours for special groups and for individuals from other parts of the nation and from abroad.

A plant tour director at this company organizes solicitation, carries on development of the program, and acts as guide, assisted when necessary by a reserve of people who, like him, have had six-weeks' training for the duty. He makes direct solicitation of medical and nursing schools, civic and educational groups. Driver-salesmen solicit visitations, and a brochure on the tour is distributed by the company's home economist through a consumer-service program conducted for women's and medical groups. About 70 per cent of visitors are of school age.

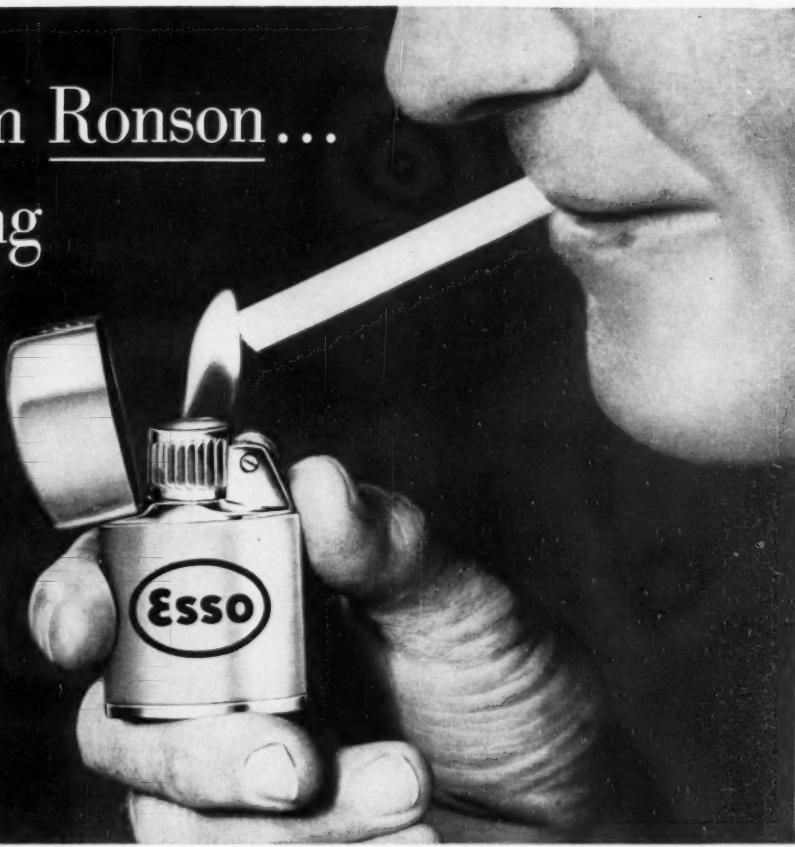
The milk company's stated purpose for the program is double: to demonstrate that the product is produced under the most sanitary conditions, and to explain company economics and acquaint the public with its background, operations, and profit picture. Supplee-Wills-Jones finds a \$25,000 price tag on a bottle-washing machine is an eye-opener, for instance, to women accustomed to thinking of a bottle

Some give "carry-homes"

The guide's talk, price tags on big machinery, post-tour question periods are relied upon to get over the company story in many year-around, open-house programs. In others, visitors are given an elaborate souvenir booklet on their trip, like The Upjohn Company's (Kalamazoo, Mich.) at left. Product samples, picture postcards, technical literature, recipes are other means.



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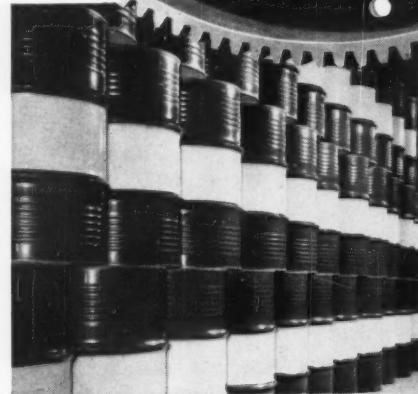
Here's A Lucky Lady. She not only owns a fine collection of pots, pans, cutlery and kitchen tools made out of beautiful, corrosion-defying stainless steel, but she also has the good fortune to be able to do kitchen chores at an easy-to-keep-shining, sanitary sink of USS Stainless Steel!



Hurricane Damage? No, this demolition job is being done on purpose . . . to make way for some new, modern buildings in a large eastern city. But whether buildings are going up, or being torn down, most of the "burden" is carried by the wire rope with which the big cranes, hoists and diggers are strung. It has to be strong, tough, reliable . . . and it is, when it's USS Tiger Brand Wire Rope.



Steel Travels In The Best Circles. Maybe you'll never find yourself in desperate need of a big circle gear like this, but if you do, United States Steel can fabricate one for you, neatly, skillfully and using the best steel for the job. For United States Steel custom-fabricates to your requirements almost anything made of steel . . . from church steeples to bridges, from dam gates to grain bins. And erects them, too.



Drums That Are Hard To Beat. Strong, leak-proof steel drums, made by United States Steel, are unsurpassed as containers for shipping almost anything anywhere. You'll find them traveling all over the world, bearing gasoline, paint, chemicals, foods, scores of other commodities. Only steel can do so many jobs so well.



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4-1445

washer as a 15-cent dishrag or bottle brush.

Hiram Walker & Sons, Inc., which has been welcoming visitors since its Peoria distillery opened 20 years ago last month, now entertains about 12,000 visitors a year, at a cost of about \$1 a visitor.

This company conducts one of the most vigorous programs to acquaint people with the fact of the tours (see pictures, page 30). Guests are met at the main gate by plant guards, registered at a reception desk, escorted to the auditorium, and given company literature to peruse until the tours start—at 10 A.M. and 2 P.M., daily.

Chemists, departmental employees and plant protection people conduct the tours, depending upon the nature and interests of the group. The trip takes about 1½ hours and ends in the "hospitality room," where guests are invited to have a highball, cocktail, or soft drink. While they relax, the guide answers any remaining questions.

Twenty years of question-and-answer periods have shown visitors are continually surprised by the number and complexity of the operations that go into distilling beverages, by the size and cleanliness of the plant, and by the huge amount the distilleries pay the government in taxes—all of them impressions to bring joy to an executive's or a stockholder's heart.

More people like to drink beer than like to see it made, but the Miller Brewing Company, Milwaukee, Wis., is an example of a company that strives to equalize the interest. It receives its 40,000 visitors each year in its Museum-Caves.

Miller talks up its open house in local and national advertising, gets about half home folks, half outsiders, a surprising percentage interested in a technical way. The standard tour lasts 45 minutes, ends in a hospitality center with Miller High Life. Guests are also given a souvenir glass and a 30-page booklet on the product and its virtues.

Stockholders are invited by letter to visit the plant of The Upjohn Company in Kalamazoo, Mich., and employees, their families, their friends, future employees, community leaders, are also welcomed. But the chief target is the professions—doctors, pharmacists, nurses, dentists, veterinarians, and students.

Last year the plant entertained 8,234 guests, of whom 1,058 were professional men and women, 3,086 were from schools, 472 were employees, and 3,618 were "laity." The budget for the activity was \$55,000, excluding salaries—Upjohn has one full-time chief guide and a full-time assistant and uses girls from technical, clerical, and production departments as his aides, training them with a detailed *Guide Manual* and two or three trips with the chief. The high budget includes hotel and meal expenses for some out-of-town professional groups.

One novel feature of the Upjohn program: Photographs are taken of all professional groups, and a print is sent each member. A tour booklet is given each visitor, and complimentary packages of products to professional visitors.

Similar is the program of the Lederle Laboratories Division, American Cyanamid Corporation, which, however, uses a staff of seven full-time young women guides, all of selected personality, with experience in handling people, two years at least of college education, and preferably knowledge of a second language. Trained for two weeks by an outside expert, they also can call upon supervisory or professional personnel for aid in answering questions of professional guests.

Lederle, situated in an obscure corner of southern New York, had 10,000 visitors in 1953, 8,000 the first six months this year, expects the 1954 total to be in excess of 15,000. Eighty per cent are from out of state, 500 of them from foreign countries. "Cost is plenty," a representative says, "but Lederle is satisfied good tours are excellent for both public and customer relations."

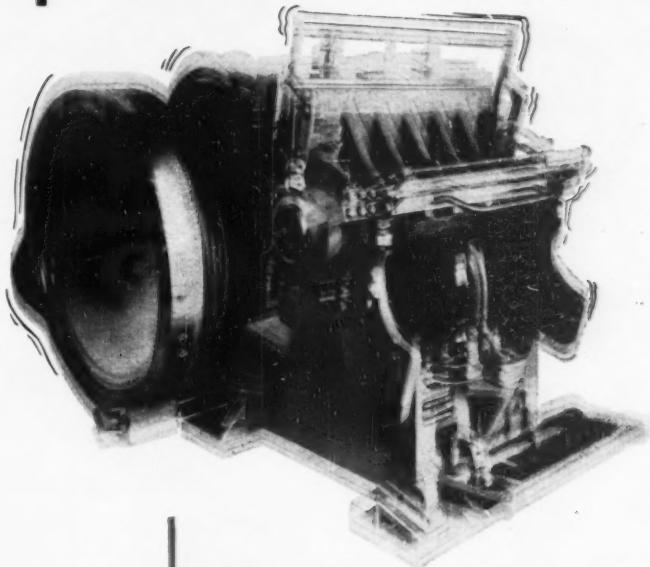
No company queried found any disturbance of production resulted from tours. "Absolutely no problem of disturbance," Lederle reports. "On the contrary, management believes tours help improve employee morale. Employees like to see what the customer looks like."

This jibes with a report from an automobile company which several years ago noted a rise in productivity on days when groups of visitors went through the plant.

What more can a company ask?

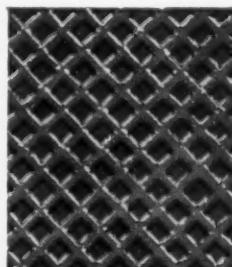
THE END

Stop Machine VIBRATION

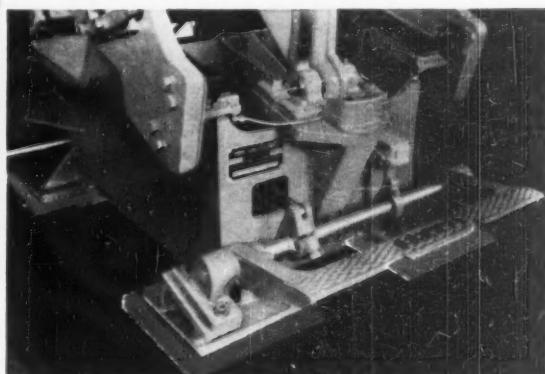


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Now, with a new type of machine pad made with BAKELITE Vinyl Resins, one simple operation reduces "walking" without resort to fastening. Just slip this pad under the machine base—and the job's done! No bolts . . . no fasteners of any kind needed to secure the equipment to the floor! Neither machine nor pad will move because of the tremendous friction provided by the specially designed pad.

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This revolutionary pad is made of layers of granulated cork and sisal fiber—impregnated with BAKELITE Vinyl Resins. Outer surfaces have a cross-grid embossing that provides a sure grip on machine and floor alike. The pad is tough and durable. It will support pressures up to 4000 psi. It resists water, oil, most chemicals, alkalies and acids.

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More data on the machine pads available from Clark, Cutler, McDermott Co., Franklin, Mass.

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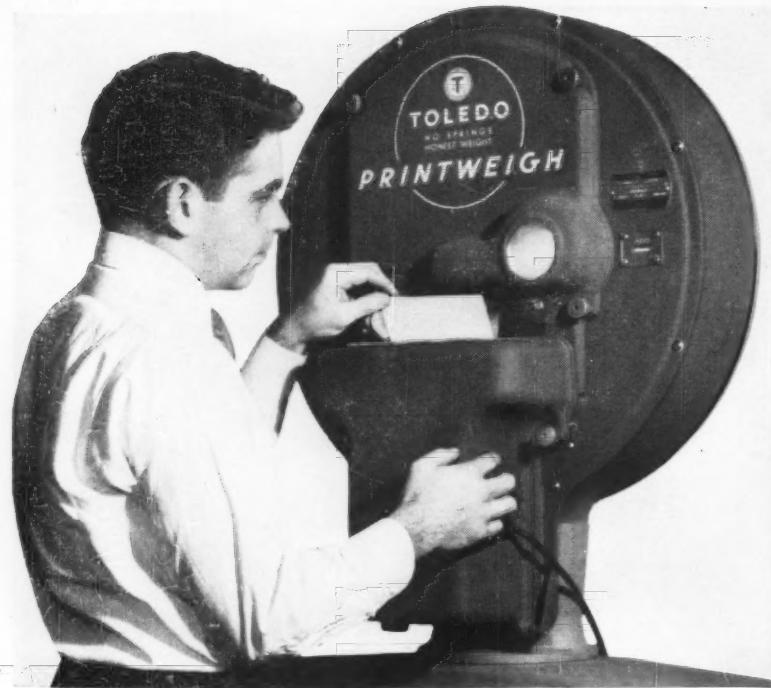
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For practical assistance in the selection of new equipment—for efficient installation—or for dependable, factory-trained service, look to your local Toledo office as headquarters. Phone there for emergency repairs on all makes of scales. Ask about the economy and assurance of Toledo service agreements for regular, periodic inspection—"the ounce of prevention" that guards essential equipment.

TOLEDO
HEADQUARTERS FOR SCALES

DECISIONS

Continued from page 28

get it. But to make a sound decision it is necessary to know what information is missing.

This shows how much of a gamble the decision involves. It shows the degree of precision and rigidity the proposed course of action can afford to have. There is nothing more treacherous or, alas, more common than the attempt to make very precise decisions on the basis of very coarse and incomplete information.

Finally, the missing information also indicates what has to be watched for in the execution of the decision as signs that the decision needs revision or modification. When information is unobtainable, guesses have to be made. Reminds me of the old saying of doctors: "The best diagnostician is not the man who makes the largest number of correct diagnoses, but the man who can spot early and correct right away his own mistaken diagnosis." To do this, however, the manager must know where lack of information forced him to guess.

It should be an invariable rule that for every problem several alternative solutions are being developed.

One reason for this is the danger of falling into the trap of the false either-or. Most people would protest were one to say to them: "All things in the world are either green or red." But most of us every day accept statements—and act on them—that are no whit less preposterous. Nothing is more common than the confusion between a true contradiction (green or non-green, for instance) which embraces all possibilities, and a mere contrast (green and red) which lists only two out of numerous possibilities. The danger is heightened by the common human tendency to think in extremes.

A good example is that of the small plumbing equipment manufacturer whose plant had become obsolete and threatened the company with the total loss of market position. Management concluded, rightly, that it had to move out of the plant. But because it did not force itself to develop alternate solutions, it decided that it had to build a new plant. And this decision bankrupted the company. Actually,

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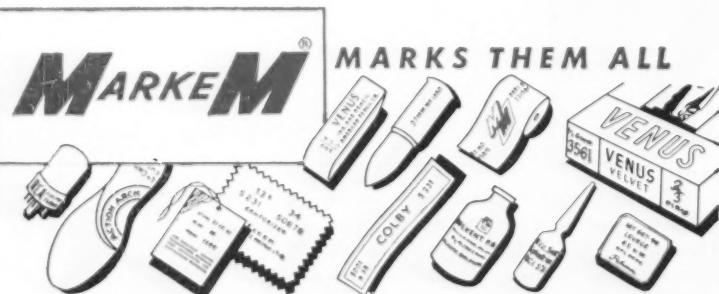


Got a bearing problem? Just reach for Hyatt's new Barrel Bearing Catalog! This is one catalog engineers have been waiting for, because it's essentially a *guide to lower maintenance costs!* Barrel Bearings are not only dual-purpose in design; they're also *self-aligning*. They operate with full efficiency under misalignment conditions which cause excessive wear in ordinary bearings. If your job involves bearing specifications, make sure you have Hyatt Catalog No. B-154. It puts a complete line of Barrel Bearings right at your finger tips. Write to Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.



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Working closely with Underwriters' Laboratories, Inc. and with leading fuse manufacturers, Markem has developed a method which makes possible for the first time the printing of label information directly on cartridge enclosed fuses at production rates. Markem's direct ink imprints cannot "fall off" and are unaffected by moisture or ordinary chemical atmospheres. Paper label inventory and wastage problems are eliminated. Print is larger and color coding and identification are simplified. Fuse manufacturers anticipate better labeling at higher production rates and with lower costs. The Markem Method—Markem Machine, Markem type and ink and the special recording die roll for use when UL Manifest is required—as well as the imprint itself meet with UL approval.

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Printing labels directly on cartridge enclosed fuses is but an example of how Markem solves industry's marking problems. Markem has been providing industry with production techniques and equipment to identify, decorate or designate its products, parts and packages since 1911. Markem also provides technically trained men who are available in your area to assure continued satisfaction with Markem methods and equipment.

When you have a marking problem, tell us about it and send a sample of the item to be marked. Perhaps a complete Markem method has already been developed to solve your problem. If not, Markem will work out a practical solution.

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MARKE M
...TO MAKE YOUR MARK

nothing followed from the finding that the old plant had become obsolete but the decision to stop using it. There were plenty of alternate courses of action: to subcontract production, for instance; or to become a distributor for another manufacturer not yet represented in the territory. Either course would have been preferable, and would have been welcomed by a management that clearly saw the dangers involved in building a new plant. Yet, management did not so much as think of these alternates before it was too late.

Think!

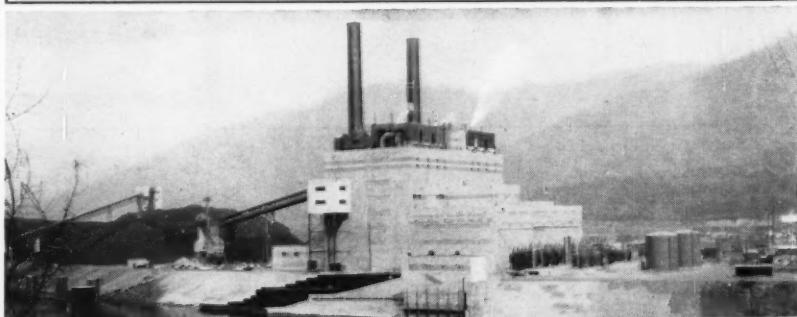
This case is one of many that brings out clearly how limited most of us are in our imagination. We tend to see one pattern and to consider it the "right," if not the "only," pattern. Because the company has always manufactured its own goods, it must keep on manufacturing. Because profit has always been considered the margin between sales price and manufacturing costs, the "only" way to raise profitability is "obviously" cutting production costs. We do

not even think of subcontracting the manufacturing job or of changing the product-mix.

Alternate solutions are the only means to bring our basic assumptions up to the conscious level, of forcing ourselves to examine them, of testing their validity. Alternate solutions are no guarantee of wisdom or of the right decision. But at least they prevent our making what we would have known to be the wrong decision had we but thought the problem through.

Alternate solutions are in effect our only tool to mobilize and to train the imagination. They are the heart of what is meant by the "scientific method." It is the characteristic of the really first-class scientist that he always considers alternate explanations, no matter how familiar and commonplace the observed phenomena. Of course, searching for and considering alternates does not provide a man with imagination he does not have. But most of us have infinitely more imagination than we ever use. A blind man, to be sure, cannot learn to see. But it is amazing how much he can learn to see through sys-

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West Virginia's electric utilities are flexing some mighty potent muscles today—electric generating capacity has been increased 850,000 kilowatts in the past two years—and more to come.

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This means constantly adequate power for West Virginia industry, and a power potential that begs for such super plants as Appalachian Power's 600,000 kilowatt plant at Graham Station or their

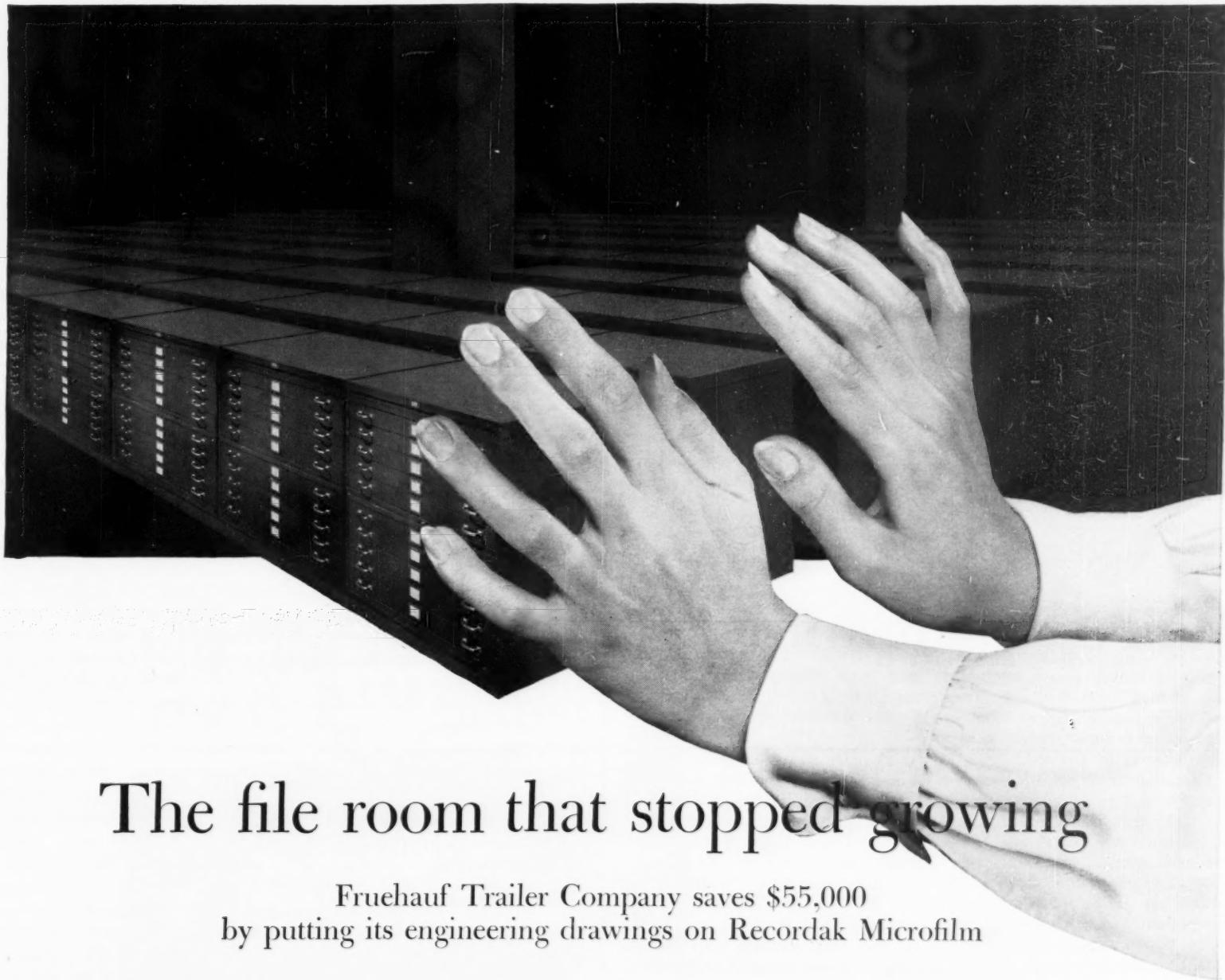
400,000 kilowatt plant at Glascow, or Monongahela Power's 135,000 kilowatt plant at Albright.

West Virginia's electric power industry today operates with a 15 per cent reserve power pool over peak demands, and delivers a main plate generation equipment rating of 2,348,000 kilowatts.

Abundant power is but one of West Virginia's many assets. Here an industry not only has power at its source, it also has the advantage of climate, location, versatile working force, varied raw materials and strategic nearness to markets.

Industries whose plans include expansion or dispersion, should inquire about the State of Progress—West Virginia. Write or phone: Executive Director, West Virginia Industrial and Publicity Commission, State Capitol Building Room DR, Charleston, West Virginia.

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Only the drawings for the seven latest model years are kept in the files. One small cabinet holds Recordak Microfilm copies of all the rest—dating back to 1919—and there's room to spare. Estimated savings to date are \$55,000.

Just another example, this, of the way Recordak Microfilming is cutting costs for more than 100 different types of business...thousands of concerns.

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- If you are now making punched card reports in duplicate or using multiple carbon forms in sales booklets, etc.
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Mail & female...first!

Sticking stamps always seemed to me to be a girl's job. And with all the small orders and samples we send out by parcel post, there certainly were a lot of stamps to lick and stick!

The stamp drawer was a nuisance—I always forgot to lock the darn thing.

Mr. Oddhem, the manager, wanted a postage report every night, and I am a bum bookkeeper.

So after I was here awhile, I sold Mr. Oddhem on getting a postage meter. Showed him it saved time on parcel post, and cut down our postage inventory.

He went for the postage protection in a meter, too; and the fact that it keeps its own records. I was glad to get rid of sticking stamps.

WELL, last Monday about four-thirty, a new doll breezes in and starts to mail letters with my postage meter.

"That's our Shipping Department meter, sister," I tells her.

"Mail and female first, Handsome," she comes back.

So every afternoon she puts the letters through the meter before I stamp the

parcel post. Smart gal! Looks like the postage meter might be the beginning of a beautiful friendship, or something!

PERHAPS you didn't know that the same postage meter provides postage for both parcel post and office letters—prints the exact postage required for parcel post on special tape, prints the meter stamp directly on the envelope and seals the flap at the same time! The double-duty postage meter saves time, work, and postage in any firm.

The meter protects your postage, keeps a record of postage used, assures you of having the right postage always on hand.

And metered mail needs no cancelling, can get away faster in the postoffice.

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tematic training of the vision. Similarly, the mind's vision can be trained, disciplined, and developed. And the method for this is the systematic search for, and development of, all possible alternate solutions to a problem.

What the alternatives should be will vary with the problem. One alternative solution should always be considered: no action at all.

To take no action is a decision fully as much as to take action. Yet few people realize this. They believe that they can avoid an unpleasant decision by not doing anything. The only way to prevent them from deceiving themselves this way is to spell out what consequences the decision for no action actually carries.

Shock Treatment

Action in the enterprise is also always of the nature of a surgical interference with the living organism. It always means that people have to change their habits, their ways of doing things, their relationship to each other, their objectives, or their tools. And, even if the change is slight, there is always some danger of shock. A healthy organism will, of course, withstand such shock more easily than a diseased one. And, to be sure, "healthy" with respect to the organization of an enterprise means the ability to accept change easily and without trauma. Still, it is the mark of a good surgeon that he does not cut unless necessary.

Lastly, the belief that action on a problem has to be taken may in itself be pure superstition.

For 20 years a large shipping company had difficulty filling one of its top jobs. It never had anyone really qualified for the position, and whoever got it found himself in trouble and conflict very soon. But for 20 years the job was filled whenever it became vacant. In the twenty-first year a new president asked: "And what would happen if we did not fill it?" Nothing would happen. It turned out that the work the position had been created to perform had long since become unnecessary. Everybody had just assumed that the position had to be filled.

It is particularly important in all organization problems that one consider the alternative of doing nothing. For it is here that traditional ways of doing things, and traditional positions reflecting past rather than present needs, have their strongest hold on management's vision and imagination. There also is the problem of the almost automatic growth of "layers" and "levels" of management that will be perpetuated, unless the decision not to fill a vacant job is always considered as part of the decision how to fill it.

Only now should the manager consider which solution is the best solution. There are four criteria for picking the best.

If the manager has done an adequate job, he will either have several alternates to choose from, each of which would solve the problem, or he will have half-a-dozen or so solutions that fall equally short of perfection, but differ among themselves as to the area of shortcoming. It is the exceedingly rare situation in which there is one solution, and one alone, that will really do. In fact, wherever analysis of the problem leads to this comforting conclusion, one may reasonably suspect the solution as being nothing but plausible argument for a preconceived idea, and the manager of skimping on his "homework." Otherwise, the four criteria apply.

First, the manager has to weigh the risks of each course of action against the expected gains. There is no riskless action. But what matters most is neither the expected gain nor the anticipated risk, but the ratio between them. Every alternate solution should therefore contain an appraisal of the odds.

The second criterion is that of economy of effort. Which of the possible lines of action will give the greatest results with the least effort, will obtain the needed change with the least disturbance of the organization? Far too many managers pick an elephant gun to chase sparrows. Far too many others use slingshots against tanks.

The third criterion is that of timing. If the situation has great urgency, a preferable course of action dramatizes the decision and serves notice on the organization that something important is happening. If long, consistent effort is needed, a slow start that gathers momentum may be preferable. In some situations, the solution must be final and must immediately lift the vision of the organization to a



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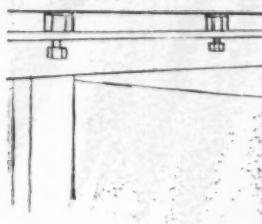
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Plates can be grooved and keyed so that two or more can be assembled into one huge unit of unlimited size.

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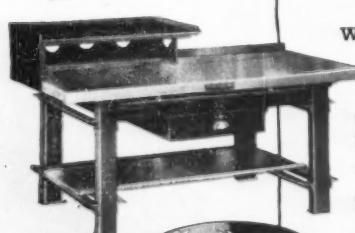
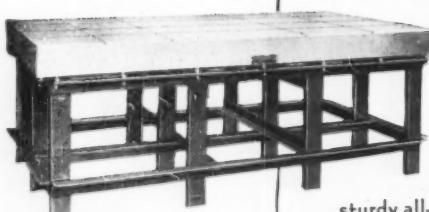
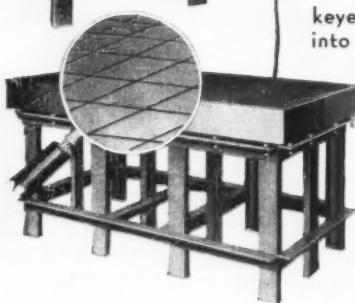
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Challenge

new goal. In others, what matters most is to get the first step taken; the final goal can be left shrouded in obscurity for the time being.

These time elements elude analysis and depend on perception. But there is one rule. Wherever managers must change their *vision* to accomplish something new, it is best to be ambitious, to present to them the big view, the completed program, the ultimate aim. Whenever they have to change their *habits*, it may be best to take one step at a time, to start slowly and modestly, to do no more at first than is absolutely necessary.

Finally, in deciding between alternatives the manager must consider the limitations of his resources. And the most important resource, with the most important limitations, are the human beings that have to carry out the decision.

No decision can be better than the people who have to carry it out. Their vision, competence, skill, and knowledge determine what they can do and what they cannot do. A course of action may well require more of them than they possess today and yet be the only right course of action. Then efforts must be made—and provided for in the decision—to raise the ability and standard of the people. Or new people may have to be found some place who have what it takes. This may sound obvious to the point of being trite. But managements every day make decisions, develop procedures, or enact policies without even asking the question: "Do we have the means of carrying out these things, and do we have the people who can carry them out?"

The wrong decision, it should be emphasized, must never be adopted because people and their competence are lacking to do what is right. Nor is it "solving a problem" to find a solution that works on paper, but fails in practise because the human resources to carry it out are not available.

It is of the essence of a manager's decision that other people must apply it to make it effective. A great deal of time is being spent to-day on "selling" this, that, and the other solution. It is wasted time. To attempt to "sell" a solution is both too little and too much. It implies that all is well if only people "buy" a solution. A manager's decision is always a decision on what other

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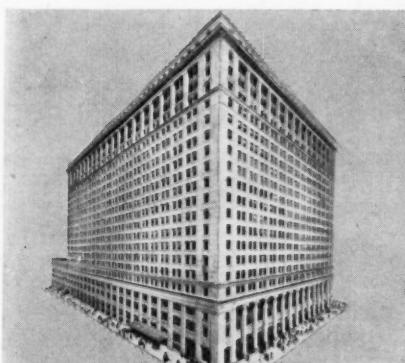
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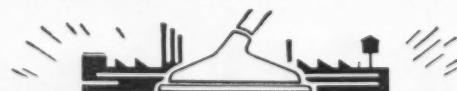
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TAKES THE DUST OUT OF INDUSTRY

people should be doing. And for this it is not enough that the other people "buy" it. They must make it their own.

But to speak of "selling" also implies that what is the right decision be subordinated to what the "customer" wants. This is poisonous and dishonest doctrine. What is right is decided by the nature of the problem—and by nothing else. The wishes, desires, and receptivity of the "customers" are quite irrelevant. If it is the right decision, they must be led to accept it whether they like it or not.

If time has to be spent on "selling" a decision, it has not been made properly and is unlikely to become effective. "Presentation" of the final results should never be important. The only thing that should ever be considered in respect to "presentation" is that, in line with the oldest and most basic rule of rhetoric, a decision should always be presented to people in language they use and understand, rather than in language that makes it difficult for them to understand what the decision is all about.

However questionable the term

(and the concept behind it) the emphasis on "selling the decision" points up an already mentioned fact: It is of the nature of the managerial decision that it is made effective through the action of other people. The manager who "makes the decision" does actually no such thing. He defines the problem. He sets the objectives and spells out the rules. He classifies the decision and assembles the information. He finds the alternate solutions and picks the best. But for the solution to become a decision, action is needed. And that the decision-making manager cannot supply. He can only communicate to others what they ought to be doing, and motivate them to do it. And only as they take the right action, is the decision actually being made.

To convert a solution into action first requires that people understand what change in behavior is expected of them, and what change to expect in the behavior of others with whom they work. What they have to understand is the minimum necessary to make them able to act the new way. It is poor decision-making to present a decision as if

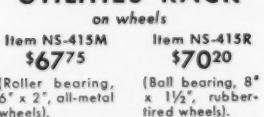
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it required people to learn all over again or to make themselves over into a new image. The principle of effective communication is to convey only the significant deviation or exception—and that in clear, precise, and unambiguous form. "Everything remains the same except" is the right order of slogan. Effective communication is, therefore, a problem in economy and precision.

But motivation is a problem in psychology, and so has entirely different rules. It requires that the decision become "our decision" to the people who have to convert it into action. This in turn means that the people who have to act have to participate responsibly in the decision.

They should not, to be sure, participate in the definition of the problem. In the first place, the manager does not know who should participate until he has both defined and classified the problem; only then does he know what impact the decision will have and on whom. Participation is not necessary, and usually not desirable, in the information-gathering phase. But the people who will have to carry out the decision should always

come in and participate in the work of developing alternates. Incidentally, this will also improve the quality of the final decisions. Points the manager would not have thought about may be brought out, hidden difficulties may be spotted, available but unused resources found.

Also, precisely because it affects the work of other people, the decision must help these people achieve their objectives, must help them in their work, must contribute to their performing better, more effectively, and with a greater sense of achievement. It cannot be a decision designed to help the manager perform better, do his job easier, or obtain greater satisfaction from it.

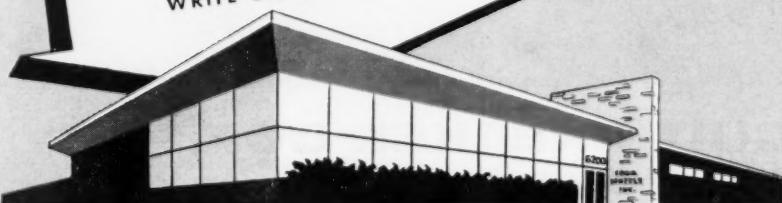
And permit me to add at this late, albeit strategic, point that nothing I have said so far about decision-making is new. On the contrary, I have only repeated what has been known for centuries, if not thousands of years. But while many managers use the decision-making method well, few understand clearly what they are doing or have thought it through.

The final article of this series, *The Manager of Tomorrow*, will appear next month.

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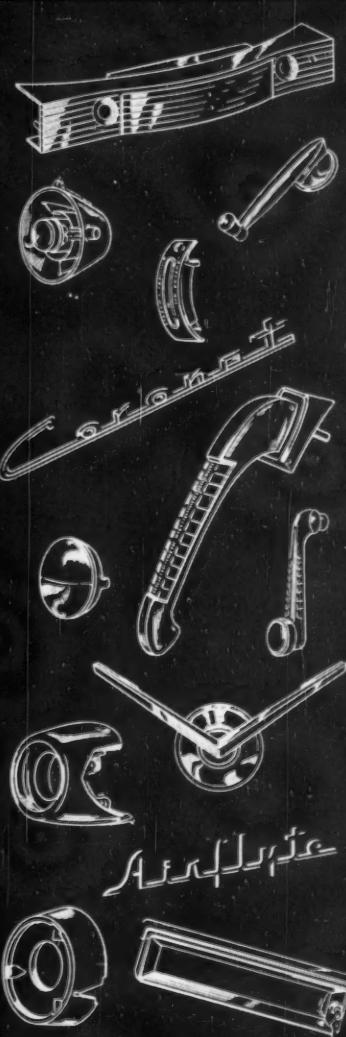
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Two Grand Rapids Brass Company plants now produce more than 17,000,000 plated, finished die castings each month.

If you require quality castings electroplated or baked synthetic lacquer finished delivered in large quantities on schedule, Grand Rapids Brass Company's design engineers and more than 1,000 skilled employees will prove of invaluable help.

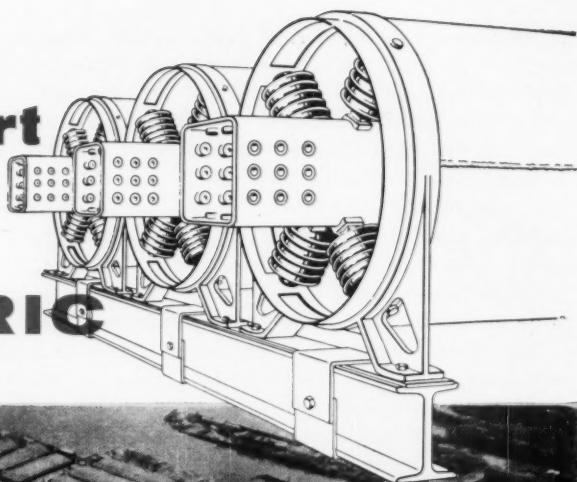
- Write for complete details on the production capabilities of one of the largest die casting-finishing plants in the nation.

**Grand Rapids
Brass Company**

Division of Crampton Manufacturing Company
Grand Rapids Michigan

Suppliers
to the Nation's Leading
Automotive, Refrigeration,
and Plumbing Manufacturers

**Power gets a new start
at
PHILADELPHIA ELECTRIC**



**In modernizing
vital Delaware Station —**

the Philadelphia Electric Company selected Isolated Phase Bus to start power on its way from the giant generators to the "world's greatest industrial area."

More than 8700 single-phase feet of I-T-E Isolated Phase Bus was installed. Flexible prefabricated sections easily followed building contours, saving valuable erection time. Bus provides the maximum safety and reliability of service PE requires.

Power plants have long looked to I-T-E as a traditional source of basic equipment and engineering aid. I-T-E is proud of its place in Philadelphia Electric's "power for progress" plans.



I-T-E CIRCUIT BREAKER COMPANY
PHILADELPHIA 30, PA.

CIRCUIT BREAKERS • METAL-ENCLOSED SWITCHGEAR • POWER SWITCHING EQUIPMENT • MECHANICAL RECTIFIERS
ELECTRONIC COMPONENTS • SPECIALIZED METAL FABRICATIONS • METAL-ENCLOSED BUS

- Million new workers find jobs
- Another new peak in construction
- Inventories less burdensome
- Retail sales at new record
- But factory lay-offs continue

The Doldrums of Doubt

Things are seldom what they seem;
Skim milk masquerades as cream . . .
Black sheep are in every fold,
All that glitters is not gold.

—H. M. S. Pinafore

Several weeks ago business men were attempting to determine if the rises in many lines during Spring were signals of a valid recovery or merely seasonal flashes in the pan. While this problem has not been entirely resolved (although the optimistic explanation seems to be gaining favor) another somewhat similar perplexity has raised its troubling head. How is one to separate the descents into the usual Summer doldrums from a resumption of the decline which began a year ago? Until the final figures—finely tailored for seasonal variations—on the performance of the economy during the Summer come available sometime next month, business men shall most likely go confidently on their appointed rounds, blithely oblivious to whether or not they are performing seasonally.

Although it was immensely evident that general business in July had moved into the calm waters of the Summer doldrums, there seemed little likelihood, if any, that it would remain becalmed for fresh winds seemed to be gathering. Wage rises, easy money, more defense spending—while not compelling enough to inflate fully the sails of business—should at least insure a delighted departure from the doleful doldrums.

Among the aspects of the economy on which most business men would heartily agree—in addition to the acerbity of competition—was that the ground had been cleared for a new rise. Banqueting business men, convention keynoters, purchasing agents, business economists, and various unassorted onlookers were virtually unanimous this Summer in attributing more strength to business in the second half than in the first.

Job Hunters Made Happy

Although almost as many people were working during July as in the prior month, the total remained below the year-ago level. Reassuring as a pat on the back was the employment picture to many people during June. However, it was not as wholly rosy as some optimists concluded from a hasty reading of the jobless totals. Neither was it so dolorous as had been predicted earlier this year, when four million unemployed were anticipated for the Summer of 1954 by even the most sanguine seers.



CHICAGO LAKEFRONT—WILLIAMS PHOTOGRAPHIE

Most pleasantly surprising was the steadiness of unemployment in June which held at 3.3 million despite the entry of a million-and-a-half students into the job market. The rise of 42,000 in unemployment was the smallest increase since 1940. However, the test was not yet over: more students most likely began hunting jobs in July, a time when neither farming nor construction were expanding sufficiently to absorb all of the new workers. As during the prior months, June joblessness held at 5.1 per cent of the labor force which was the lowest level since last January.

In pre-war 1939 unemployment had averaged 17.2 per cent—that is, seventeen of every 100 people who were able and willing to work could not find jobs. Among the most heartening news was a drop of 200,000 in the ranks of the long-time jobless (out of work for fifteen weeks or more) who had totalled more than a million for the past three months. In early July new claims for unemployment insurance benefits rose 19 per cent as many workers ineligible for vacation pay filed their claims; however, continued claims remained close to the 1954 low.

The new workers in June were to a large extent absorbed by agriculture and construction. Although total employment rose one million to 62.1 million, the rise was both less than usual and concentrated primarily in farming. The unremitting decline in factory payrolls which had been going on since July 1953 was virtually halted in June 1954 when the dip amounted to only 6,000, as rises among producers of soft goods were offset by still-shrinking payrolls of durable-goods producers.

While the total number of people at work in June was down 1.1 million from a year ago, the decline in employment in non-agricultural establishments was even sharper: 1.8 million. This large-scale disappearance of jobs mirrored, of course, inventory-slashing, defense cutbacks, productivity gains, and the inevitable shifts characteristic of a dynamic economy. Most of the vanished jobs evaporated in manufacturing and particularly in durables; the attrition was most marked among producers of transportation equipment, machinery, primary metals, and textiles. Year-to-year gains in employment were scored by such lines as construction, service, finance, and local Government.

There were signs of a rise in factory jobs in

Weekly Business Signposts

SELECTED BUSINESS INDICATORS	LATEST WEEK*	PREVIOUS WEEK	YEAR AGO
Steel Ingot Production Ten Thousand Tons	154	156	209
Bituminous Coal Mined Hundred Thousand Tons	722	535	916
Automobile Production Thousand Cars and Trucks	119	123	161
Electric Power Output Ten Million K.W. Hours	910	895	846
Freight Carloadings Thousands Cars	695	570	721
Department Store Sales Index Number (1947-1949=100)	115	97	111
Wholesale Prices Index Number (1947-1949=100)	110	110	111
Bank Clearings Hundred Million Dollars	921	857	896
Money in Circulation Hundred Million Dollars	299	300	300
Business Failures Number of Failures	188	226	184

*Steel data are for the fourth week of July; all others are for the third week except coal, freight, sales, and money which are for the second.

Sources: Amer. Iron & Steel Inst.; U. S. Bureau of Mines; Automotive News; Edison Electric Inst.; Assoc. of Amer. Railroads; U. S. Bureau of Labor Statistics; DUN & BRADSTREET, INC.

Business thrives on credit, both getting and giving. Yet in giving credit, a business may as a result find itself in **need** of more ready funds. To handle larger credits or for any other sound reason could your business use more **cash?**

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A Service Available Through Subsidiaries of
COMMERCIAL CREDIT COMPANY

Capital and Surplus Over \$150,000,000

The Trend of BUSINESS

the months to come. The work-week lengthened again in June for the second straight month—a pattern which frequently presages adding to payrolls. At 39.6 hours the average factory work-week was quite close to the overtime-payment point which many manufacturers would like to avoid during a period of acute cost consciousness. The lengthening of the work-week in primary metals and furniture in June was the largest since the end of World War II. At \$71.68, the average factory worker's wage was only 68 cents below the all-time high reached last December.

Although there was little change in the number of jobs in factories and mines in June, total industrial production edged upward slightly to 124 (1947-1949=100). The July decline was expected to be somewhat less than in recent years. Output continued to be down about 9 per cent from a year ago, with the largest declines generally paralleling the drops in employment. Steel production, which has been one of the most severely affected segments

of the economy during the recent readjustment, recovered in July from the vacation slowdown in the early part of the month. The recent rise in steel prices was widely expected to be absorbed by fabricators and other users. Machinery makers who saw their orders dwindle sharply during the past year looked hopefully to the changes in depreciation allowances in the new tax law to boost their backlog.

Inventories which have been viewed variously as a sore spot or the area of healthy adjustment, continued to decline in June. As during the prior month, when inventories were below a year earlier for the first time in four years, total stocks held below the 1953 level. The decline during June was much smaller than during May when business men slashed their stocks on hand by over \$700 million. The most strenuous efforts at inventory trimming continued to be on the manufacturing level. Most buyers held their commitments to the needs of the near-future, although there was widespread belief that

Industrial Production

Unadjusted Index: 1947-1949 = 100; Federal Reserve Board

	1951	1952	1953	1954
January	121	119	132	124
February	123	123	136	126
March	124	123	135	125
April	123	120	136	123
May	121	118	136	123
June	122	118	136	124
July	111	118	129	118
August	115	118	136	124
September	121	121	135	124
October	122	121	136	124
November	120	124	130	124
December	118	131	124	124

[†]Approximation; figure from quoted source not available.

Consumers' Price Index

Index: 1947-1949 = 100; U. S. Bureau of Labor Statistics

	1951	1952	1953	1954
January	108.6	113.1	113.9	115.2
February	109.9	112.4	113.4	115.0
March	110.3	112.4	113.6	114.8
April	110.4	112.0	113.7	114.6
May	110.9	113.0	114.0	115.0
June	113.4	114.5	115.1†	
July	114.9	114.1	114.7	
August	110.9	114.3	115.0	
September	111.6	114.1	115.2	
October	112.1	114.2	115.4	
November	112.8	114.3	115.0	
December	113.1	114.1	114.9	

[†]Approximation; figure from quoted source not available.

Wholesale Commodity Prices

Index: 1947-1949 = 100; U. S. Bureau of Labor Statistics

	1951	1952	1953	1954
January	115.0	113.0	109.9	110.9
February	116.5	112.5	109.6	110.5
March	116.5	112.3	110.0	110.5
April	111.0	111.8	109.4	111.1
May	115.0	111.6	109.8	110.8
June	115.1	114.2	109.6	110.1
July	114.2	111.8	110.9	110.1
August	113.7	112.2	110.6	
September	113.4	111.8	111.0	
October	113.7	111.1	110.2	
November	113.6	110.7	109.8	
December	113.5	109.6	110.1	

[†]Approximation; figure from quoted source not available.

Employment

Millions of Persons: U. S. Bureau of the Census

	1951	1952	1953	1954
January	59.0	59.7	60.5	59.8
February	58.9	59.7	60.9	60.1
March	60.2	59.7	61.5	60.1
April	60.0	60.1	61.2	60.6
May	61.2	61.4	60.6	61.1
June	62.8	62.6	63.2	62.1
July	62.5	62.4	63.1	62.0
August	62.6	62.4	63.4	
September	61.6	62.3	62.5	
October	61.8	61.9	62.2	
November	61.3	62.2	61.9	
December	61.0	61.5	60.8	

Includes all civilian workers.

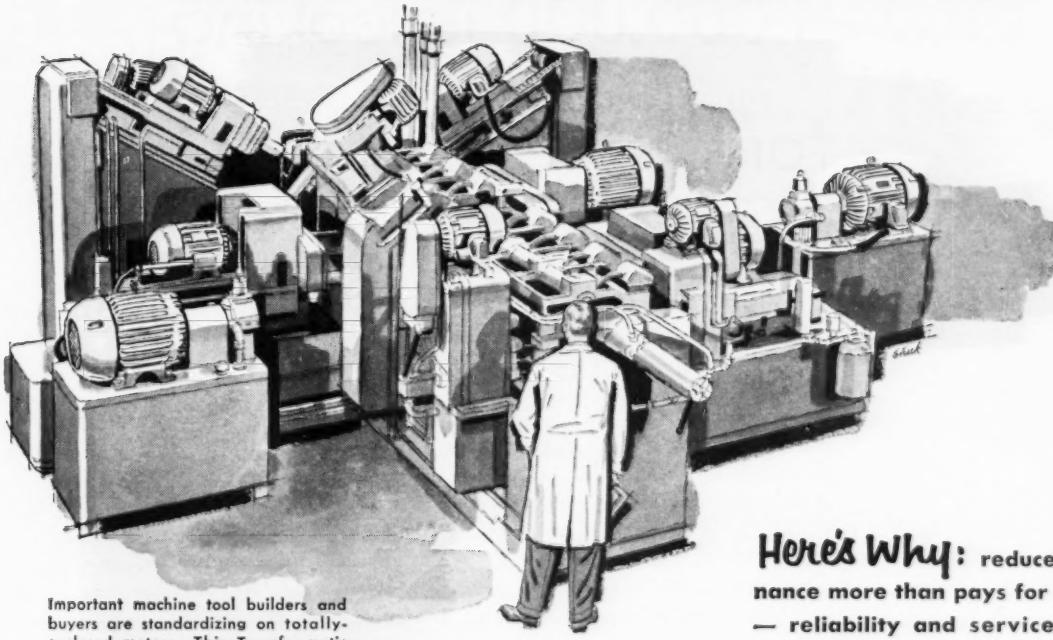
Retail Sales

Billions of Dollars: U. S. Department of Commerce

	1951	1952	1953	1954
January	12.6	11.8	13.0	12.4
February	11.7	11.7	12.3	11.9
March	13.4	12.7	14.0	13.3
April	12.5	13.4	14.2	14.3
May	13.3	14.4	14.7	14.2
June	13.3	13.8	14.6	14.5
July	12.4	13.4	14.4	14.5†
August	12.8	14.2	14.2	
September	13.0	13.6	14.1	
October	13.0	14.8	15.0	
November	13.4	14.0	14.0	
December	13.4	16.9	16.4	

[†]Approximation; figure from quoted source not available.

Preference for Totally enclosed Motors Soars Since 1948!



Important machine tool builders and buyers are standardizing on totally-enclosed motors. This Transfer-matic built to JIC standards by The Cross Company for a large automotive supplier uses 22 Allis-Chalmers totally-enclosed motors.

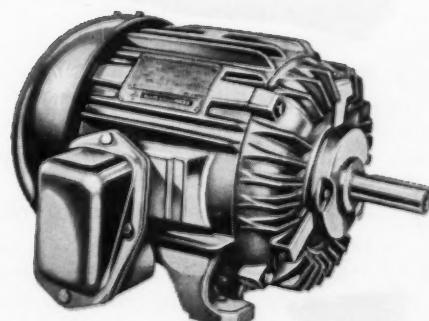
Here's Why: reduced maintenance more than pays for added cost — reliability and service continuity are extra benefits.

MORE and more industries of all kinds are standardizing on totally-enclosed motors. The ratio of these to open motors is steadily rising. Economy-minded managements find it pays to use these motors almost everywhere even though the initial price is higher than for open motors.

It's a Better Investment—Totally-enclosed motors are protected against most of the causes of expensive maintenance and premature failure. Experience proves that the low maintenance and dependability which result from this protection make the use of totally-enclosed motors a sound economic practice.

Allis-Chalmers Motors Pace the Trend—Eight years ago, Allis-Chalmers introduced its fin-type, totally-enclosed motor. The popularity of this construction is evidenced by new models very recently introduced by several other manufacturers.

For all the facts, contact your A-C office or distributor. Or, write Allis-Chalmers, Milwaukee 1, Wisconsin.



ALLIS-CHALMERS



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Is your business

one of the many that is suffering from growing pains...caught in the trap of constantly increasing sales without a comparable increase in "working money" to carry them?

We have helped many sound and successful companies over this hump with our working money plan of financing. Today, they are among our best clients.

IT IS a familiar story to us. A business grows to the point where sales outstrip the financial ability to handle them. Money is tied up in materials, goods in process, new equipment. The payroll goes up and up. Swollen accounts receivable look fine on paper, but they are 30 to 60 days or more from helping today's pinch.

If you were in this spot, how would you handle it?

Textile Banking Company's working money program offers you solid help in a very simple way. It will enable you to defrost your frozen assets. Put back into circulation the money...your own money...now locked up in receivables and inventory. Turn your

idle money into working money by using Textile Banking Company's type of financing service.

LAST YEAR, we supplied more than \$300,000,000 of working money to successful, growing companies in various fields. Not only are they completely satisfied with our method of keeping them in a strong cash position...but also they value the helpful collateral services that are available to them if they wish.

If our type of financing service fits your operation, we can supply you with working money to an amount generally limited only by your sales volume. And, in using our service, your management retains full operating control...does not suffer interference from us.

A normal requisite for our service is a minimum annual sales volume of a half million dollars. But we can and do make exceptions for firms which have promising potentials for growth.

WE WILL be glad to confer with you on your financing problems. Or, write for details of our "Working Money" program...without any obligation, of course.



Textile Banking Company, Inc.

Financing Leading Firms in Many Fields of Industry
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The Trend of BUSINESS

most of the inventory paring had already been generally achieved.

Free Spenders

Reflecting the gains in employment and wages in June, total personal income held close to the \$285 billion reached in the prior month despite some slight loss in farm income from sliding prices. For the first half of 1954 there was scant variation in total personal income from the comparable 1953 level. During the same period consumer spending topped all previous records although retail trade was not quite up to 1953 in the early months of the year. However, the increased spending for housing, utilities, medical and other services, transportation—much of it involuntary due to increased prices—was not reflected at the retail level.

For the second month this year, retail stores sold slightly more in July than they did a year earlier. Although most shoppers were quite price-conscious (discount houses are growing rapidly), there was much less consumer hesitation than during the 1948-1949 slowdown. In fact, the recent decline in factory production was apparently prevented from feeding on itself and thus spiralling downward by the strong floor offered by consumer spending.

In June retail trade was virtually unchanged from the record level of a year before and 2 per cent above the prior month. In contrast to the pattern of purchasing in recent months, most retail lines showed little variation from a year ago. The most pronounced rise was that of 5 per cent at gasoline stations. Both apparel and household goods, which had registered year-to-year losses in

recent months, were close to the year-ago levels. The most spectacular news on the retail scene was made by automobile dealers who sold 8 per cent more new cars than in June 1953; this was the first year-to-year gain in auto sales scored in 1954. However, the rejoicing in dealer showrooms was not especially boisterous for profit margins have been deeply diminished from the pressure of severe price competition.

The most sinewy section of the economy, construction continued to boom in June and chalked up a new record volume of \$3.3 billion. The most pronounced gains over the prior month were in non-residential construction, particularly in highways and commercial structures. The gain of 3 per cent over the year-ago level was compounded of a variety of variations; school building was up 38 per cent while military installations were down 45 per cent. The gains in residential building were buttressed by VA mortgage insurance which underwrote a much larger proportion of new homes than a year ago.

Failures Up Slightly

Business failures, after a two-month decline, edged up 2 per cent in June to 965 and were 18 per cent above last year, exceeding any June since 1941.

Concerns failed at a rate of 43 per 10,000 listed enterprises, according to Dun's Failure Index which projects monthly mortality to an annual basis and adjusts for seasonal fluctuations. This casualty rate rose from 41 per 10,000 in the preceding month and 36 a year ago, but remained considerably below the pre-war toll of 60 per 10,000.

BANK CLEARINGS

(Thousands of Dollars)

	1954	1953	Change
Total 24 Cities.	38,478,436	37,477,667	2.7
New York City	47,566,263	41,716,906	4.0
Total 25 Cities.	86,044,699	79,194,573	8.6

NEW BUSINESS INCORPORATIONS

Geographical Divisions	June	1954	Six Months
New England.....	633	606	3,716
Middle Atlantic.....	3,148	2,856	18,937
East North Central.....	1,635	1,570	9,886
West North Central.....	481	461	2,912
South Atlantic.....	1,413	1,385	8,279
East South Central.....	275	271	1,645
West South Central.....	448	455	3,493
Mountain.....	508	381	2,603
Pacific Coast.....	1,207	941	6,419
United States.....	9,748	8,926	57,890
			54,471

DAILY WHOLESALE PRICE INDEX

The index is prepared on the basis of daily spot closing prices of 30 primary commodities (1930-1932 = 100).

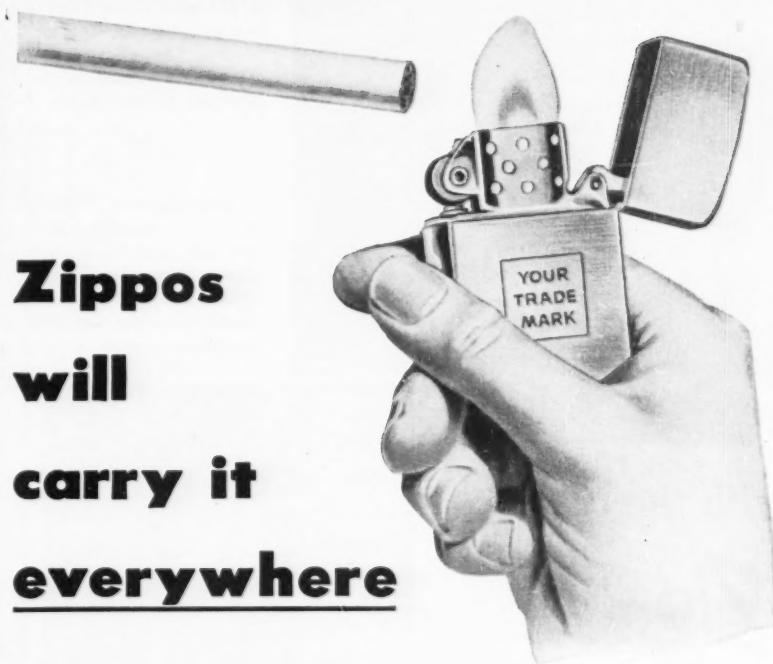
Week	Ending	Mon.	Tues.	Wed.	Thurs.	Fri.
July 30	272.39	271.99				
July 23	273.06	272.93	271.62	271.98	272.05	
July 16	272.51	272.87	272.52	272.28	273.02	
July 9	272.11	273.64	272.78	272.89		
July 2	271.46	271.13	270.72	272.13	272.35	

WHOLESALE FOOD PRICE INDEX

The index is the sum total of the prices per pound of 31 foods in general use. It is not a cost-of-living index.

Latest Weeks	Year Ago	1954
July 20	\$7.23	July 21 \$6.75
July 13	7.23	High May 25 \$7.46
July 6	7.22	July 14, 6.74
June 29	7.30	Low Jan. 5 6.85
June 22	7.28	July 7, 6.62
		1953
		High Dec. 29, \$6.81
		Low Feb. 3, 6.13

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them, just as surely as the Zippo flashes into flame.

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Zippo Manufacturing Co.

Dept. D-2, Bradford, Pa.

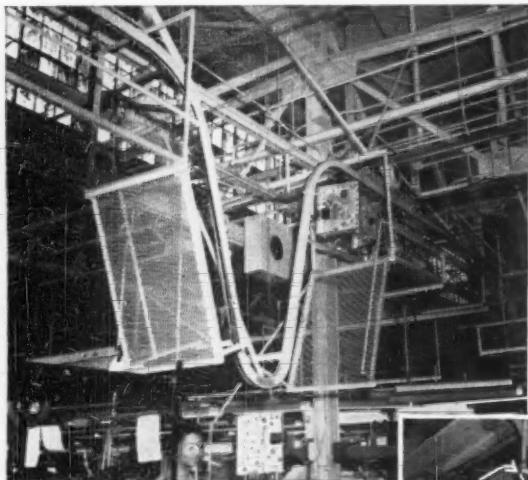
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Firm _____

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• "Bare Chassis" conveyor in RCA plant is over 1,000 feet long. Here ZIG-ZAG is used for both production-flow and moving storage of television receiver chassis.

• "Record Conveyor," 1,800 feet long, is inverted type. ZIG-ZAG operates upside down in 10-inch deep trough, pushing boxes of finished records to packing department and warehouse.



with the help of

"Zig-Zag"®

Continuous Power Conveyors

The Radio Corporation of America's plant at Indianapolis, Indiana, turns out hundreds of television receivers every day. Even the slightest hitch in production-flow can seriously hamper vital deliveries to dealers.

To expedite handling, RCA installed several Richards-Wilcox ZIG-ZAG Continuous Power Conveyors to keep things moving smoothly, both on production lines and in transport between divisions. They help boost TV and phonograph record production by eliminating production bottlenecks.

RCA chose ZIG-ZAG for the same reasons so many other manufacturers have done so—because it's quality designed and manufactured for years of low-cost, trouble-free service. Because of its flexibil-

ity, operating continuously "up, down, in, out and around" anywhere overhead, releasing valuable floor space and personnel for other jobs. And because when changing conditions make alterations necessary, ZIG-ZAG Conveyors can be relocated by plant personnel, usually without loss of a single part.

Whatever your problems in materials handling, R-W ZIG-ZAG Conveyors can help you solve them. With carrying pendants located on 6-inch centers, ZIG-ZAG is designed to handle any load a man can lift in continuous production. A choice of drive units permits travel at any required speed with variations of 10 to 1 or better. For complete details on R-W ZIG-ZAG Conveyors, write us or consult an R-W Engineer, at no obligation.



1880 1954

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SCHOOL WARDROBES & PARTITIONS •

The Trend of BUSINESS

businesses recorded during 1939.

Liabilities rose more than the number of failures in June, mounting 8 per cent above May to \$41,613,000.

All of the upturn from May took place in manufacturing and construction. Only two notable changes occurred in manufacturing; casualties in the textile and apparel industry increased markedly whereas casualties in the paper and printing industry dropped sharply to the lowest level this year.

Among retail failures there was a decline in the food and general merchandise lines, while the toll in most other lines edged upward. Casualties in the automotive trade have remained relatively even for three consecutive months. Retailers of food and general merchandise had lower mortality than last year;

FAILURES BY DIVISIONS OF INDUSTRY

(Current liabilities in millions of dollars)

	Number 6 Months 1954	Liabilities 6 Months 1954	Number 6 Months 1953	Liabilities 6 Months 1953
Mining, Manufacturing	1,205	844	104.5	65.5

Mining—Coal, Oil, Miscellaneous	32	21	6.3	0.9
Food and Kindred Products	90	81	10.3	8.4
Textile Products, Apparel	297	206	17.4	12.7
Lumber, Lumber Products	176	119	8.8	6.2
Paper, Printing, Publishing	67	60	6.4	8.7
Chemicals, Allied Products	43	33	3.4	4.2
Leather, Leather Products	56	50	3.2	4.0
Stone, Clay, Glass Products	32	20	1.0	0.8
Iron, Steel, and Products	61	25	7.2	3.9
Machinery	150	69	27.3	7.9
Transportation Equipment	30	21	3.6	1.9
Miscellaneous	171	139	9.7	5.6

WHOLESALE TRADE...

Food and Farm Products	551	447	26.9	23.8
------------------------	-----	-----	------	------

Apparel	144	128	6.5	6.3
Dry Goods	21	18	0.5	0.5
Lumber, Building Materials	37	17	1.8	0.9
Hardware	52	40	2.8	4.2
Chemical and Drugs	24	17	0.6	0.7
Motor Vehicles, Equipment	26	22	0.8	0.7
Miscellaneous	247	205	13.9	10.5

RETAIL TRADE.....

Food and Liquor	2,900	2,150	81.9	55.4
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General Merchandise	512	443	7.3	7.0
Apparel and Accessories	96	77	4.4	1.8
Furniture, Furnishings	459	319	9.4	9.0
Lumber, Building Materials	519	330	28.9	12.0

Automotive Group

Eating, Drinking Places	166	108	4.7	3.8
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Drug Stores	301	240	11.2	6.4
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Miscellaneous	489	372	9.1	8.6
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Drug Stores	86	59	1.7	2.1
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Miscellaneous	272	202	5.3	4.7
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CONSTRUCTION.....

General Building Contractors	673	504	26.4	19.1
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Building Sub-contractors	233	186	12.3	8.5
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Other Contractors	406	291	12.4	8.0
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COMMERCIAL SERVICE	34	27	1.7	2.6
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TOTAL UNITED STATES	449	339	17.6	10.5
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TOTAL UNITED STATES	5,778	4,284	257.3	174.4
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FREE Reg. Size compact of STAYMOIST

the pleasant, sanitary, long lasting FINGER TIP MOISTENER!

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"Copy Negative 8" x 10", \$1.25; postcards 75¢
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WE DELIVER WHAT WE ADVERTISE



"After testing all types
... we standardized on
Magcoa Dockboards"

Says James McCabe, Chief Industrial Engineer, American Maize-Products Co., Roby, Indiana—"Before standardizing on Magcoa Dockboards," says Mr. McCabe, "we tried all types—both heavy-metal and another type of light-metal, 'home-made' and specially made.

"Cost records for our 31 Magcoa Dockboards, used on both truck docks and rail docks," continues Mr. McCabe, "show a measurable savings of more than \$2500 a year in labor, truck and tire maintenance—plus an immeasurable employee relations benefit because our Magcoa Dockboards are safe and save strain. They actually paid for themselves in their first three years of service."

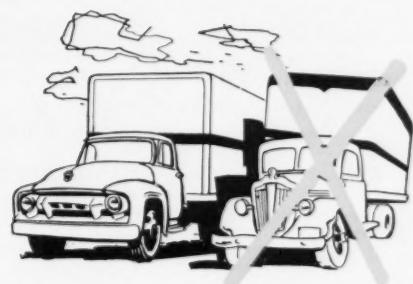
For your free copy of the new Dockboard FACTS FILE, clip this coupon to your business letterhead, print your name clearly... and mail to

MAGNEUM COMPANY
OF AMERICA MATERIALS HANDLING DIV.
EAST CHICAGO 9, INDIANA

NOW! Get all the benefits of truck ownership...without capital investment!



1. Why tie up huge capital in the purchase of your trucks? Let Hertz buy them! Use your capital for other company needs.



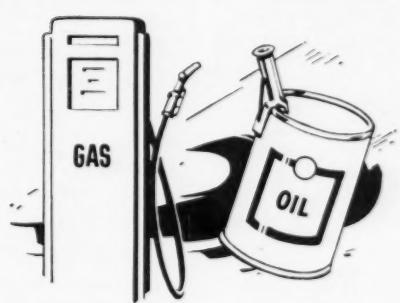
2. If you now have trucks Hertz will buy them at mutually agreed prices and lease them to you. If your trucks are too old, Hertz will furnish new Fords or other fine trucks.



3. Hertz maintains all trucks. We garage them, wash them, repair them, keep them always in top condition for daily dependable service.



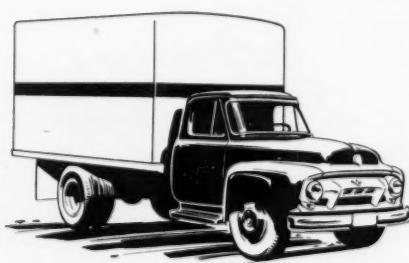
4. Trucks engineered to suit you. For your exact needs, Hertz engineers your trucks to proper specifications. Paints them as you wish to look as your own.



5. We supply gasoline, oil—all necessary accessories: tires, anti-freeze, etc.—everything but the driver.



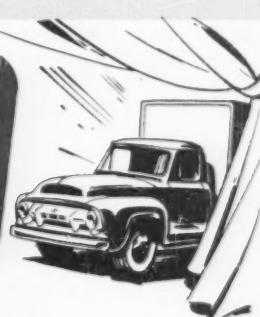
6. Insurance furnished also for your protection. Policies drawn to your satisfaction, through your agent or broker, if you prefer.



7. For rush periods or peak loads, Hertz can supply you with extra trucks whenever you need them...as long as you need them.



8. You save bookkeeping expense. Instead of many individual bills for hundreds of items...you get only one bill from Hertz.



9. With Hertz Truck Lease Service your trucks are always in fine condition, clean, smart-looking...add prestige to your company.



Hertz Truck-Lease Service is most flexible. You may use all or any of the above benefits, according to your needs. If you prefer others which are not shown, Hertz will provide them too.

Hertz serves every type of business. Among Hertz customers are manufacturers, wholesalers, distributors, retailers...restaurants, laundries, cleaners, department stores, grocers, specialty shops, etc.

Hertz—the world's largest truck and passenger car rental organization—has a 30-year record of customer satisfaction. You will find it pays to lease or rent trucks from Hertz. For folder giving complete information call your local Hertz station or write or phone Hertz Truck-Rental System, Department H84, 218 South Wabash Avenue, Chicago 4, Illinois. Phone: WEbster 9-5165. No obligation, of course.

Look in your telephone directory under "H" for your nearest Hertz station.

HERTZ Truck-Rental **SYSTEM**

BEFORE: Cast Metal



AFTER: Molded Durez



Could YOU reduce parts cost this way?

Phenolic plastics are more than ever a profitable line of approach to better products... and to fabricating economies. New materials developed by Durez are continually widening their usefulness in fields requiring electrical, heat, and impact resistance.

From our files, this example is one that might well be matched in your business — in what you make or propose to make. Seeking to overcome the cost of numerous pre-assembly operations on a precision-balanced turntable (plus a reject problem), this

manufacturer solved both problems by switching to a unit of molded Durez. The net result was a saving of 30% in cost installed, with engineering specifications met in all respects.

We can show you how these engineering plastics are used by many leading manufacturers to save operations... to improve product performance and appearance. Ask, too, for our monthly "Plastics News" with reports of interesting applications. Write...

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PHENOLIC PLASTICS
for the new Competitive Era



MOLDING COMPOUNDS. Structural, electrical, and chemical properties in many combinations.



RESINS FOR INDUSTRY. Bonding, casting, coating, laminating, impregnating, and shell molding.

The Trend of BUSINESS

the lumber and automotive lines held steady, while moderate increases prevailed in other lines.

Little change occurred between May and June in seven of the nine major geographic regions. However, New England casualties fell to the lowest level this year, and those in the Pacific States climbed to a record high, due largely to an upswing in California. Contrary trends prevailed within the Middle Atlantic States; failures in New York dipped to the smallest number so far in 1954 while the toll in Pennsylvania reached a post-war peak. All regions except New England reported heavier casualties than in June 1953, with the most notable increases from last year occurring in the South Atlantic and West South Central States.

All of the June upturn was concentrated in the non-metropolitan districts. Mortality in most of the 25 largest cities dipped or held steady. Only two cities had notably higher failures, Philadelphia which had the most since June 1949, and Indianapolis where a post-war high was established. In both the large cities and the balance of the country, business mortality exceeded last year's level.

THE FAILURE RECORD

	June 1954	May 1954	June 1953	P.C.
--	-----------	----------	-----------	------

DUN'S FAILURE INDEX*	42.5	43.1	35.4	+20
Unadjusted, ...	42.9	41.0	35.8	+20
Adjusted, seasonally				

NUMBER OF FAILURES	965	943	817	+18
--------------------	-----	-----	-----	-----

NUMBER BY SIZE OF DEBT

Under \$5,000	119	149	139	-14
\$5,000-\$25,000	497	482	395	+26
\$25,000-\$100,000	268	243	233	+15
\$100,000 and over	81	69	50	+62

NUMBER BY INDUSTRY GROUPS

Manufacturing...	208	200	145	+43
Wholesale Trade...	89	91	80	+11
Retail Trade...	455	460	419	+9
Construction...	132	111	99	+33
Commercial Serv.	81	81	74	+9

(*Liabilities in thousands*)
CURRENT..... \$41,613 \$38,494 \$32,379 +29
TOTAL..... 41,615 39,068 32,454 +28

*Apparent annual failures per 10,000 listed enterprises, formerly called Dun's INSOLVENCY INDEX.
†Per cent change, June 1954 from June 1953.

BUSINESS FAILURES include those businesses that ceased operations following assignment or bankruptcy; ceased with loss to creditors after such actions as execution, foreclosure, or attachment; voluntarily withdrew leaving unpaid obligations; were involved in court actions such as receivership, reorganization, or arrangement; or voluntarily compromised with creditors out of court.

CURRENT LIABILITIES, as used in the Failure Record, have a special meaning; they include all accounts and notes payable and all obligations, whether in secured form or not, known to be held by banks, officers, affiliated companies, supplying companies, or the Government. They do not include long-term, publicly held obligations. Offsetting assets are not taken into account.



Saves Typing Time...
Stops Eye Fatigue!

PANAMA "COPY-HOLDER" BOX

Panama-Beaver's exclusive patented carbon paper box has a built-in copy holder that flips open with a flick of the wrist. Keeps copy material upright and in full view... speeds work... cuts office costs. Folds up neatly under box lid after use. COSTS NOTHING EXTRA when you buy Panama-Beaver Carbon Paper—America's sharpest-writing, cleanest-erasing smudge-free carbon!

Have the Panama-Beaver representative near you show you the Copy Holder Box without obligation!

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Ebony Duplicating Carbons • Eye-Saver
Unimasters • Lustra Colorful Inked Ribbons

SAVE 20% on sealing costs!



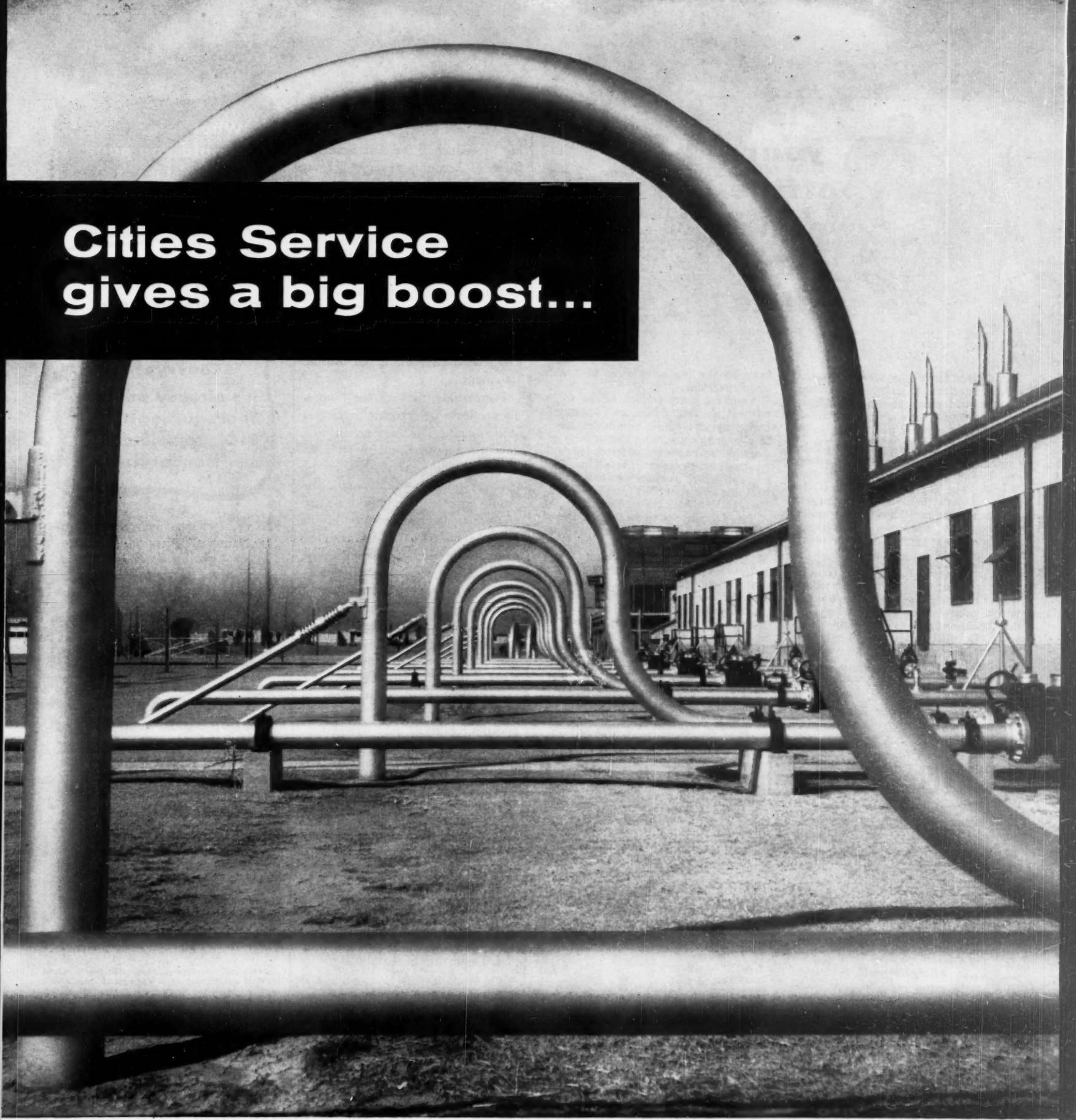
"Dial" gummed tape electrically

The new Marsh Dial-Taper is real news to users of gummed tape. Dispenses all kinds, in widths to 3", electrically. Select your length on the telephone-type dial, dial it, and out it shoots moistened with warm water. Sticks instantly. Saves 1/5 on tape, often more in man-hours.

For more information or a free demonstration mail us this ad with your name and business letterhead

MARSH Electric Dial-Taper

MARSH STENCIL MACHINE COMPANY
62 MARSH BLDG. • BELLEVILLE, ILL.



**Cities Service
gives a big boost...**

Every minute, day in day out, 1,200,000 cubic feet of natural gas are pushed through pipe lines by the 220,000 horsepower in our booster stations.

CITIES  SERVICE
A Growth Company



is your office wasting plant profits?

The efficient techniques which have enabled American industry to increase production, lower costs and build customer good will, have not been equalled by office management methods.

In 1920, 11 people were employed in clerical jobs for each 100 plant workers. In 1954, the ratio is 25 to 100. Wages have skyrocketed. Hours are shorter. More high salaried supervisory executive jobs have been created. In many cases, office overhead is losing money almost as fast as the plant makes it.

This is the time for top executives to think in terms of modernization which will bring "office" costs down to a point which protects your profit-wise production controls. Ask yourself this question, "In today's highly competitive market, can we afford to pay an 8-hour a day salary for a 6-hour a day job?" Dictograph Inside Communication, specifically geared to your needs *today*,

Dictograph... THE BIG NAME IN PROFIT-MAKING INSIDE COMMUNICATION, DESIGNED TO SERVE THE SPECIFIC NEEDS OF EVERY BUSINESS, INDUSTRY, INSTITUTION AND BRANCH OF GOVERNMENT.

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NOW! INSTANT, CONFIDENTIAL, PERSON-TO-PERSON COMMUNICATION... *Miracle-Page* enables you to receive a completely confidential message anywhere in your organization. To reply, you employ the nearest instrument of inside communication. *Miracle-Page* is effective alone or can be used with any Dictograph performance perfect communications system.

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LEASING

Continued from page 23

ing Procedure of the American Institute of Accountants states, "However, the committee is of the opinion that the facts relating to all such leases should be carefully considered and that, where it is clearly evident that the transaction involved is in substance a purchase, then the 'leased' property should be included among the assets of the lessee with suitable accounting for the corresponding liabilities and for the related charges in the income statement."

Fortunately, most of the proposals are lease agreements in fact as well as name. The lessor retains title to the equipment and there is no clause providing for purchase by the lessee. Under these proposals, the lessor agrees to supply specified equipment for a stated monthly or annual rental. Terms vary as to the minimum period of time of rental, provision for renewals and cancellations, frequency of replacement of used equipment with new equipment, insurance coverage, and responsibility for repairs and maintenance. Because of the many variations in the proposals, it is desirable initially to analyze all of them, in order to appraise their soundness and desirability.

The points for consideration in the analysis are suggested by the promotional material of the lessors setting forth the advantages of their plans over purchase. Each includes one or more of the following:

1. Saving or release of working capital which, under ownership, would be invested in fixed assets.
2. Lower costs—operating, purchasing, and equipment records.
3. Saving of management time.
4. Deduction of rental fees for income tax purposes.
5. Elimination of risk of obsolescence when period of use is short or indeterminate.

In discussing these considerations certain assumptions will be made: (1) that there is a need to replace old or buy new equipment, (2) that the alternative is between ownership or leasing and not between company ownership or employee ownership, as for salesmen's automobiles, and (3) the term "equipment" includes all long-life assets, except land and buildings.

There can be no question as to

What color
should you paint
a belt
conveyor?

Most of them
are painted green.
And if you get a
BARBER-GREENE
Conveyor,
it's already painted.
That's just part of
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NEW! The most complete, comprehensive, easy-to-use Conveyor Catalog ever published. See your Barber-Greene Distributor or request Cat. 76-A on your company letterhead.

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THE TIME-TESTED RECORDING SPEEDOMETER

Cut costly truck
maintenance and encourage
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ALL THIS CHARTED FOR YOUR RECORDS

- WHEN ENGINE STARTED
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- WHEN VEHICLE WAS IN MOTION
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- DISTANCE BETWEEN STOPS



Automatically controlled, needle-like points record all vital information on a wax-coated chart which is placed inside the Tachograph at the start of each day. In addition, Tachograph-equipped vehicles have fewer accidents, spend less time in repair shops, save gas and tires, and earn lower insurance rates. Coupon below will bring you copy of Bulletin SU-3.

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They help them become better drivers—they correct bad driving habits and give protection against false accusations.



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We operate (number) _____ vehicles S54-II

Why

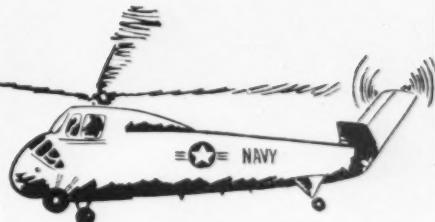
do most types of 'copters fly with Lycoming-built engines?



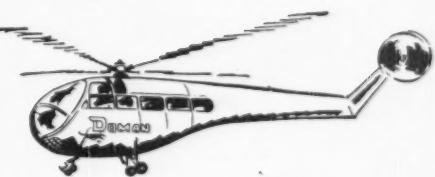
Lycoming-powered* Piasecki H-21
Matériel and Troop Transport



Lycoming-powered Kaman HTK-1
Military Trainer



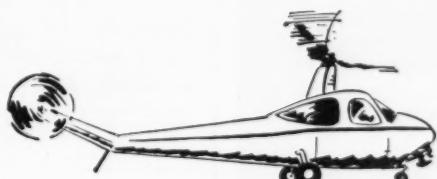
Lycoming-powered* Sikorsky S-58
Anti-Submarine 'Copter



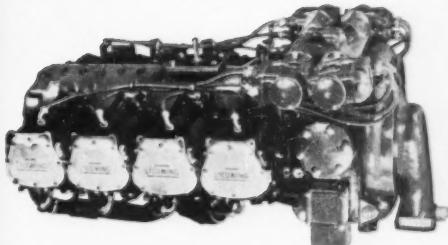
Lycoming-powered Doman L-25
General Utility 'Copter



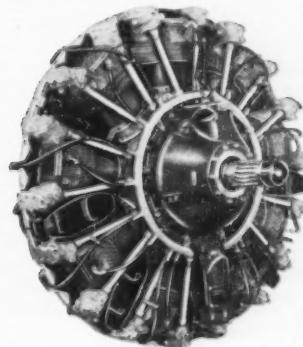
Lycoming-powered Brantly Model B-2
Personal 2-place 'Copter



Lycoming-powered Glenview FlyRide
Personal 2-place 'Copter



4-, 6-, and 8-cylinder opposed
air-cooled engines



7- and 9-cylinder radial
air-cooled engines*

The answer is simple: Lycoming builds more types of power plants designed for varied types of helicopters than any other engine manufacturer. Some users are shown above.

Since 1940—when Lycoming powered the pioneering Vought-Sikorsky 300—Lycoming has produced engines ranging from 135 to 1500 horsepower.

If your problem is air-cooled power . . . precision parts . . . volume fabrication . . . or "just an idea" in the rough or blueprint stage that needs development . . . look to Lycoming. Long famous for metal-working skills, Lycoming meets the toughest specifications of exacting customers, both industrial and military.

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LOOK TO

Lycoming

DIVISION OF



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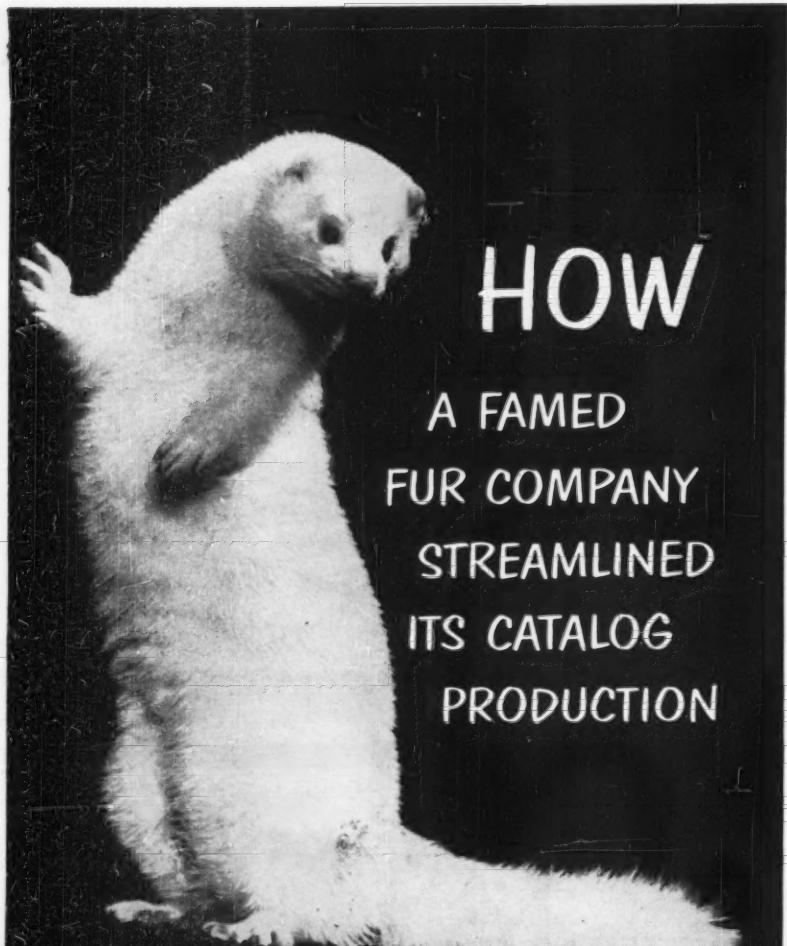
ENGINEERS WANTED:
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AIR-COOLED ENGINES • PRECISION PARTS • TURBINE RESEARCH & DEVELOPMENT

LYCOMING TURBINE ENGINES

Still "under wraps," being developed for the Military. New Lycoming "pioneers" that promise greater efficiency, greater economy, more brilliant performance than any helicopter engines ever before developed.

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the freeing of working capital for other purposes if equipment is leased instead of purchased. If a shortage of working capital exists, or is forecast, the question is, shall we borrow money to purchase needed equipment or shall we lease the equipment? Apart from the effect on costs, discussed later, this question must be answered on the basis of the effect on the balance sheet and the extent of possible business risks.

Watch Ratios

Leases are not reflected in the balance sheet and thus do not affect financial ratios. Borrowing money on short-term notes to purchase equipment reduces the ratio of current assets to current debt. Management must weigh the effect on the current ratio in relation to the probable need for future borrowing and to their desire to maintain a minimum current ratio. Consideration must also be given to the need for higher inventories to provide immediate delivery in a period of intense competition and the probable slowing of customer payments.

It is possible that borrowing will be necessary to provide funds for

these and that, under these conditions, it would be prudent to lease equipment rather than to borrow the money to buy it. Of course, if borrowing capacity is exhausted, leasing may prove to be the salvation of the business as the only means of acquiring equipment for expansion or cost reduction.

In appraising relative risk to the prospective lessee it must be remembered that a lease covers a specific piece of equipment. If circumstances prevent the payment of rent, the lessor can take possession of the equipment. A short-term loan is usually made on the general credit of the company. If an interest payment is missed there is less possibility of the lender taking possession of the very equipment which may be needed to produce income to meet the payments.

Cost considerations affect the decision to borrow money to buy equipment versus leasing it, as well as the decision to lease when funds are available for outright purchase. Coincident with the effect on cost is the effect on profit after tax and on operating ratios. Many companies consider the return on capital em-

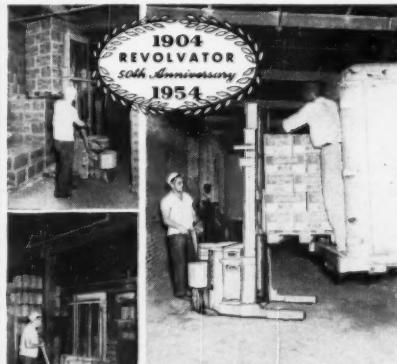
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Door-to-Door Warehouse Handling Efficiency

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Illustrated above is the high lift model Go-Getter—the favorite of the food producers—accepted throughout all industry. In 2000-3000 lb. capacities—remarkably adept in narrow aisle work the Revolator Go-Getter high lift truck permits great economies in warehousing.

Write for the full facts today.

REVOLATOR CO.
8702 Tonnele Ave. North Bergen, N. J.

ployed to be a most important ratio indicating management effectiveness. They take as capital employed the total assets of the company or the total assets assigned to a segment of the company. Net profit is related to capital employed to establish the return on capital employed.

Cost Alternatives

Since return on capital employed can be increased by (1) increasing sales volume without an equal increase in cost, (2) reducing cost, and (3) reducing capital employed, management is constantly seeking means of achieving any one of these results. The leasing plans offered to them appear to provide a solution to their problem of keeping capital employed at a minimum. In determining the effect of leasing or buying on costs and operating ratios, it is possible to make definitive evaluations of the alternatives. Examples of such evaluations follow.

Probably the earliest lease proposals, and the most numerous today, are for automobiles and trucks. Evaluation of these is comparatively easy, for most companies maintain cost records for automotive equipment.

ment or, if they do not, they can construct the costs which will be affected from the general books. Although there may be wide variations in the proposed terms of rental, it is generally practical for evaluation to follow the same pattern, that is, comparison of the annual cost under the rental agreement with the cost of operating company-owned cars for the past year.

The operating costs of the owned cars are taken from the detailed automobile operating cost records. These costs are segregated into those which would and would not be incurred if the cars were leased. Operating costs not included in the rental charges are then added to the annual rental price and the total compared with the total annual cost of ownership.

Consideration is next given to interest on the investment in cars, the investment being the depreciated value of the fleet owned. Costs of acquisition and record-keeping are estimated and included in the comparison, even though it is believed that these could not be eliminated if cars were leased, because they are incurred in many departments. The

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**YOU SUPERVISE THE WORK OF EVERY MAN
—EVERY MACHINE!**



IN A SMALL PLANT radio adds real value to the few vehicles employed. Use it to increase payloads per hour . . . cut way down on demurrage expense!

IN A LARGE PLANT radio shrinks truck travel distance. Instant contact makes deadheading back to the dispatcher for instructions a thing of the past!



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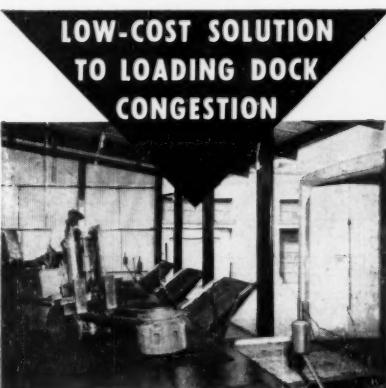
FREE! Get this booklet and see how G-E 2-way radio communication efficiently organizes industrial production. Write: General Electric Company, Section X7884, Electronics Park, Syracuse, N.Y.

Good supervision of men and machines in any plant quickly shows up on the profit side of the ledger. And, that key role is the exact function of 2-way radio in industry today! Production handling instructions can be sent and acted on seconds later! Radio equipped trucks speed the flow of material between departments . . . are always "on call" to complete a rush order or emergency operation.

Examine its potential use in your plant today. A trained General Electric representative from our local office is available to assist you without obligation. Why not call him!

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GENERAL  **ELECTRIC**



RITE-HITE ADJUSTABLE LOADING RAMP

Becomes a permanent part of your dock . . . keeps trucks and dock traffic smoothly on the move.

Simple, precision counterbalanced mechanism. No pipes, pumps, gears, motors. Little or no maintenance required. Horizontal adjustment feature reduces truck maneuvering.

Proven in use by dozens of leading commercial and industrial plants.*

3 types, 5 models . . . capacities 10,000 and 20,000 pounds. Priced from \$395.

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Please send free Pendaflex catalog to

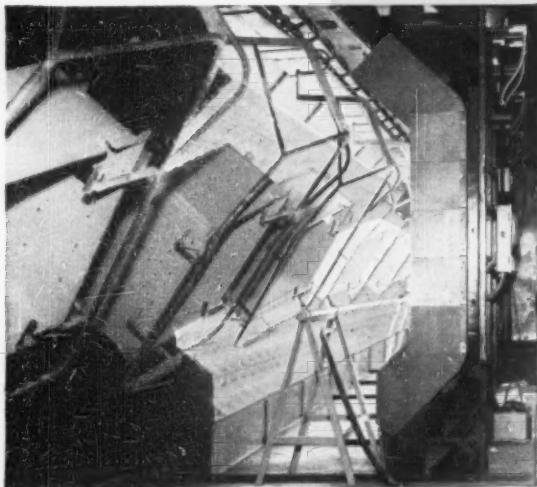
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HIGH SPEED BAKING

3 TO 10 MINUTE TIME—AUTOMATIC CONTROL



HANDLES ANY
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ANY SHAPE
ANY COLOR

In the "world's most modern refrigerator plant," The Hot-point Co., Chicago, Ill., uses this compact "J" shaped Fostoria Infra-red oven to dry vitreous enamel ground coat on refrigerator inner liners. Total heat zone time is 3 1/4 minutes. Operating load is 450 KW. Production rate is 140-160 liners per hour.

Profit with MODERN FOSTORIA OVENS

ALL THESE ADVANTAGES

FASTER CYCLES
Fastest heat transfer. Greatest output to input. Instant action.

LESS SPACE
Most production for oven size. May be ceiling mounted.

CLEAN OPERATION
No by-products of combustion. No condensation.

UNIFORM BAKE
Even-ray heat distribution with thorough penetration.

Flexibility
Adaptable to any material, any shape, any color. Infinitely variable heat levels.

SAFETY CONTROLLED
No warm-up, no shut-off lag. Instant heat control.

LESS MAINTENANCE
Lowest source replacement cost. Least efficiency loss.

HIGHEST EFFICIENCY
Less than 2% energy loss. Heats product—not oven walls.

CUTS COSTS
Lowest "per piece" production cost. Competitive initial cost.

RELIABILITY
Foremost engineering "know-how" and service.

Greater production efficiency is the keynote for the competitive era ahead. New methods, new modern equipment are vital to reduce man-hours, lower production costs, increase sales demand. For baking and drying operations, the modern Fostoria Infra-red Oven provides an array of cost-saving, quality-improving advantages. By far the most efficient of all industrial ovens, as thoroughly proved in over 7,000 plants, Fostoria gives the most productive output to energy input, PLUS the greatest production in the least space, PLUS the fastest time cycle, PLUS automatic control. For lowest "per piece" production cost, for finest quality baking, for the competitive efficiency of your plant, compare your present equipment. The expert on-the-job assistance of a Fostoria field engineer is promptly available to you without obligation.

SEND FOR COMPLETE FACTS
Write for this brochure of technical facts and case histories of many Fostoria oven installations. Tell us your particular problem and we will include data directly applicable to your operation.

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OVENS

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total cost of ownership is then compared with that of leasing.

The automobile records may disclose that the company realizes a profit on its used cars sold and replaced with new ones. This profit on sale of used cars should be deducted to arrive at the net cost of ownership as arrived at for comparison with the cost of leasing.

If these comparisons show a cost advantage of ownership, the advantage is reduced by the applicable normal tax and surtax (52 per cent) to arrive at the after-tax net profit advantage of ownership. Since the company sells its used cars and treats the profit as a capital gain, the after-tax figures reflect a retention of 75 per cent of this profit. The after tax effect is determined in every instance because deductibility of rental for tax purposes is emphasized in so many of the proposals.

While the study might show leasing to be more costly than ownership, a conclusion should not be drawn until the effect on the return on capital employed is determined. It could be that the reduction in assets resulting from the sale of presently owned automobiles, assuming the proceeds were used to reduce current liabilities, would be great enough to offset the effect of less profit.

Thus we can conclude that, in appraising purchase versus lease on the basis of the effect on the return on capital employed, it is:

1. Advantageous to purchase rather than lease if the net profit dollar advantage of ownership is higher as a percentage of the book value of the equipment purchased than the average return on capital employed.

2. Disadvantageous to purchase rather than lease if (a) the net profit dollar advantage of ownership is lower as a percentage of the book

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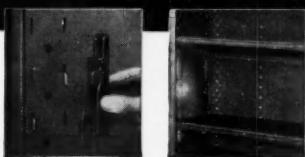
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value of the equipment purchased than the average return on capital employed, or (b) costs of ownership are higher than costs of leasing.

These conclusions are illustrated further by the following study of leasing or purchasing machine tools. For this type of equipment the proposals are less uniform in rental rates and conditions of lease than those for automobiles. A typical evaluation study is shown in the table on page 23. This is for the rental of machine tools which should be depreciated over a period of fifteen years, or over a period of ten years with a salvage value of one-third of the purchase price at the end of the tenth year.

Rental payments include insurance of the machine. All other costs, including maintenance, are borne by the lessee. Rental rates are quoted per \$10,000 of the list price of the machine tools for each year of a ten-year period and are high in the early years and decline to nominal rates in the later years. In computing the cost of ownership, interest is included at 3.5 per cent of the average book value of the equipment in each year. This average is



HIBBS PHOTOGRAPH

computed as the book value at the beginning of the year less one-half of the depreciation for the year.

In this illustration, there is a profit disadvantage in leasing during the first five years of the lease and a profit advantage during the second five years. Over the ten-year period, net profits will be higher by \$2,132 per ten thousand dollars of list price if the machine is purchased instead of leased and the owner will have a machine with a book (and salvage) value of \$3,330. Assuming the machine is sold for book value at the end of the tenth year, the owner will have a net profit and a net cash advantage of ownership of \$2,132.

This illustration reflects depreciation on the straight-line method.



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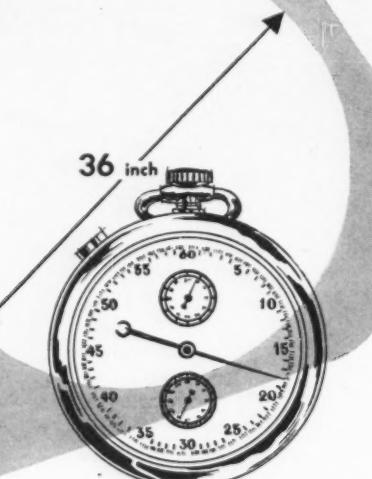
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CUTS A

**36 inch
CIRCLE**

in 18 seconds

**($\frac{1}{4}$ " mild steel)
($\frac{3}{16}$ " stainless)**



Even veterans of the metal working industry watch with open-eyed amazement as Pullmax cuts large circles from heavy gauge steel in a matter of seconds. This job was done on a Pullmax Major with a power feed attachment that cuts 32 lineal feet per minute (also applies to straight shearing). There are 9 sizes and capacities of Pullmax machines to choose from that work the thinnest gauges up to $11/32$ " in mild steel. Use them for straight, circle, irregular or slot cutting, as well as beading, folding, dishing and louvering in mild or stainless steel, non ferrous metal, wire mesh or plastic.

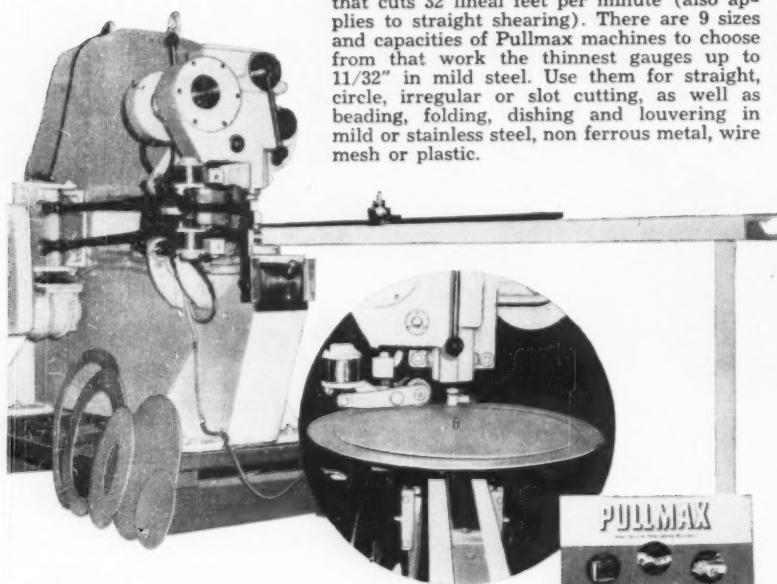


Illustration shows Pullmax Major with outside centering device which cuts circles of unlimited diameters.

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Other methods of computing depreciation would change the comparative annual and total costs. Also, a uniform tax rate is used. Higher tax rates in the earlier years than in the later ones would also change the comparative costs.

To go further and to determine the effect of machine tool rental on return on capital employed, it is assumed in the study that a company finds it necessary to replace a machine which is fully depreciated. It is also assumed that cash will be used to reduce current liabilities if a machine is leased. Thus, the effect of the purchase of a machine for \$10,000 would be to employ more capital than if the machine were leased. Before acquisition of the new machine the capital employed was \$5 million and net profit was \$350,000, a return of 7.0 per cent. All other assets and costs, except those incident to the purchase or lease of the replacement machine, are assumed to remain constant over the ten-year period.

Reflecting these assumptions, the return on capital employed is shown on page 65 for the \$10,000 replacement machine, first as a purchased

and then as a leased item. The added capital employed and the changes in net profit are based on the schedule already shown in the table on page 23. Comparison of the return on capital employed shows that, if the machine is leased, the return is lower for the first two years and higher thereafter, than it is if the machine is purchased. This is the result of the ratio of the profit advantage of ownership to the amount of capital required for ownership.

This study reveals a peculiar situation. There is a net profit advantage of ownership in total over the ten-year period, profit advantages in the first five years more than offsetting profit disadvantages in the last five years. On the other hand, ownership results in a better return on capital employed in only the first two years of the period. Over the ten-year period of ownership, the average additional capital employed shows as \$6,670 and the net profit improvement is \$2,132, a ratio of 32 per cent, or a straight arithmetical average of 3.2 per cent per year. Since this is less than the average return experienced before replacement, it obviously results in a re-

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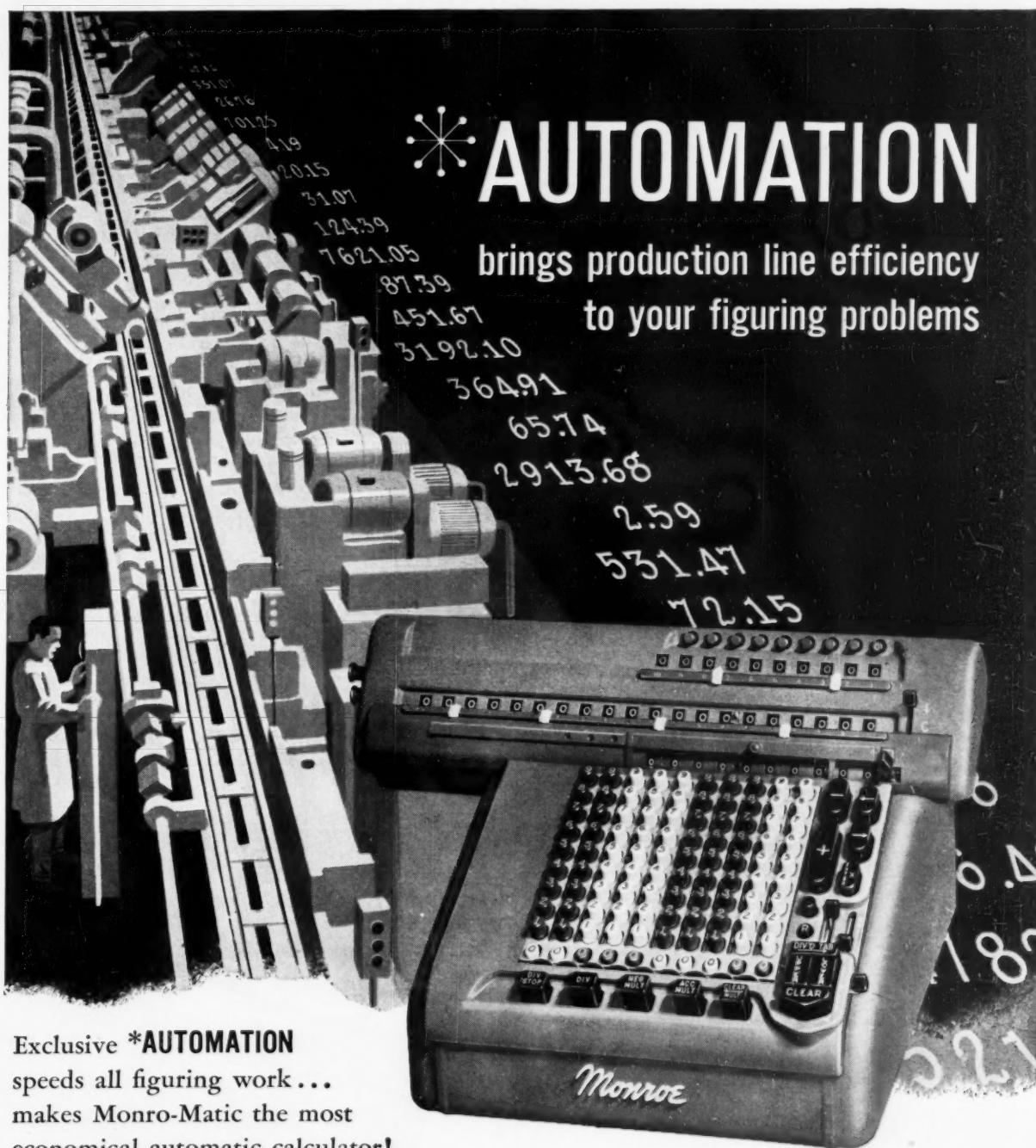
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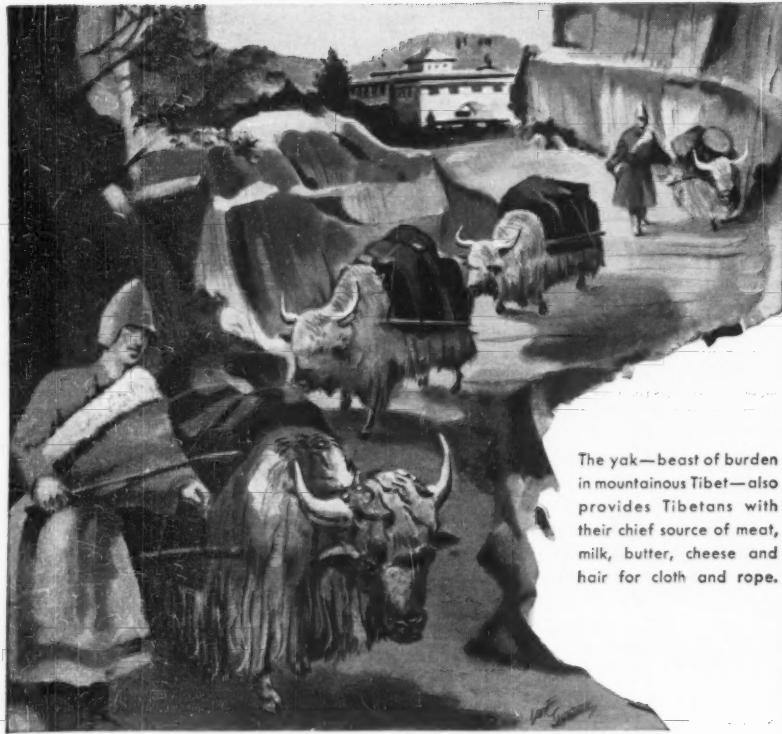
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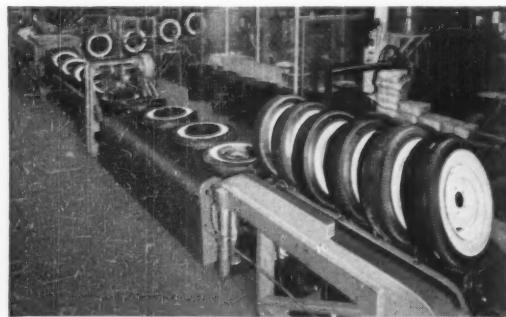
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duction in the average return after replacement of the machine by purchase. In this case, the weight of evidence is on the side of leasing.

As to income tax considerations, if a lease agreement is a lease in part, there is no question as to the deductibility of the rent. But, if the equipment is owned, the depreciation and interest on any money borrowed to finance the purchase are deductible. Therefore, the tax advantage of leasing is not a problem of deductible costs versus non-deductible costs. It is a question of how much is deducted and in which years it is deducted.

In any year or period of years the alternative which has the cost and return on capital employed advantage after tax is the better choice, and taxes need be considered only to the extent that they affect profit. Certainly management does not want to incur high costs simply because they are deductible for tax purposes when the same production or service could be secured for lower costs. At anything short of a 100 per cent tax rate some of the cost saving is retained as net profit.

When the period of use of equip-

ment is short, a strong case can be made for leasing. It is recognized that the loss in value of many items of equipment is greatest in the earlier periods of their life; for example, automobiles. The cost of leasing for a short term, since the lessor will have opportunities for subsequent leases to others, will usually be substantially less than the net cost of purchase less recoverable value from sale after use. When the equipment requirements are of uncertain duration leasing will eliminate the possibility of high obsolescence.

Defense Work

When equipment is needed for Government contracts the period of use is usually indeterminate and leasing may be desirable if rental costs can be recovered in the contract price. If they can it is of no importance if they are higher than costs of ownership. Also, in acquiring equipment for defense work, leasing may circumvent the problems of securing certificates of necessity for accelerated amortization.

Finally, there is one factor which is of prime importance to the lessee

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and that is the financial strength and general stability of the lessor. If a substantial portion of the production or service assets of a company are to be leased there should be reasonable assurance that the lessor will be able to offer the lease arrangements on reasonable terms indefinitely. Otherwise a company may find that it suddenly has to find new sources for equipment.

Conditions may force them to buy it after they had lost their contacts with suppliers, through leasing over a period of years. And, they may be forced to buy, or to pay substantially higher rental costs, at a time when they can ill afford to deplete their working capital or incur higher costs.

In short, the question, "Shall we lease or buy equipment?" cannot be answered with a simple yes or no. Neither can definitive evaluations be made which will provide all of the answers. Cost evaluations of lease proposals are essential so as to provide factual information as a basis for management decision. With the tangibles set forth, it may not be necessary to consider the intangibles. However, if it is, they

will be in better perspective if a sound study has been made. The studies given as illustrations show how these evaluations can be made. They were not presented to provide the answer to the question, "Shall we lease or buy equipment?" Every proposal must be analyzed in the light of specific conditions in each company, considering both the tangible and the intangible factors.

THE END

RETURN ON
CAPITAL EMPLOYED
*Based on Average Capital
and Net Profit**

Year of Use	Owned (%)	Leased (%)
1	6.9765	6.9626
2	6.9777	6.9712
3	6.9788	6.9798
4	6.9800	6.9846
5	6.9811	6.9885
6	6.9823	6.9923
7	6.9834	6.9952
8	6.9846	6.9965
9	6.9857	6.9977
10	6.9869	6.9990

*Average capital consists of the \$5 million original capital plus the average book value of the purchased machinery; under a leasing arrangement, average capital would remain fixed at \$5 million. Net profit is \$350,000 minus the total cost (or rental) after tax at 52 per cent.

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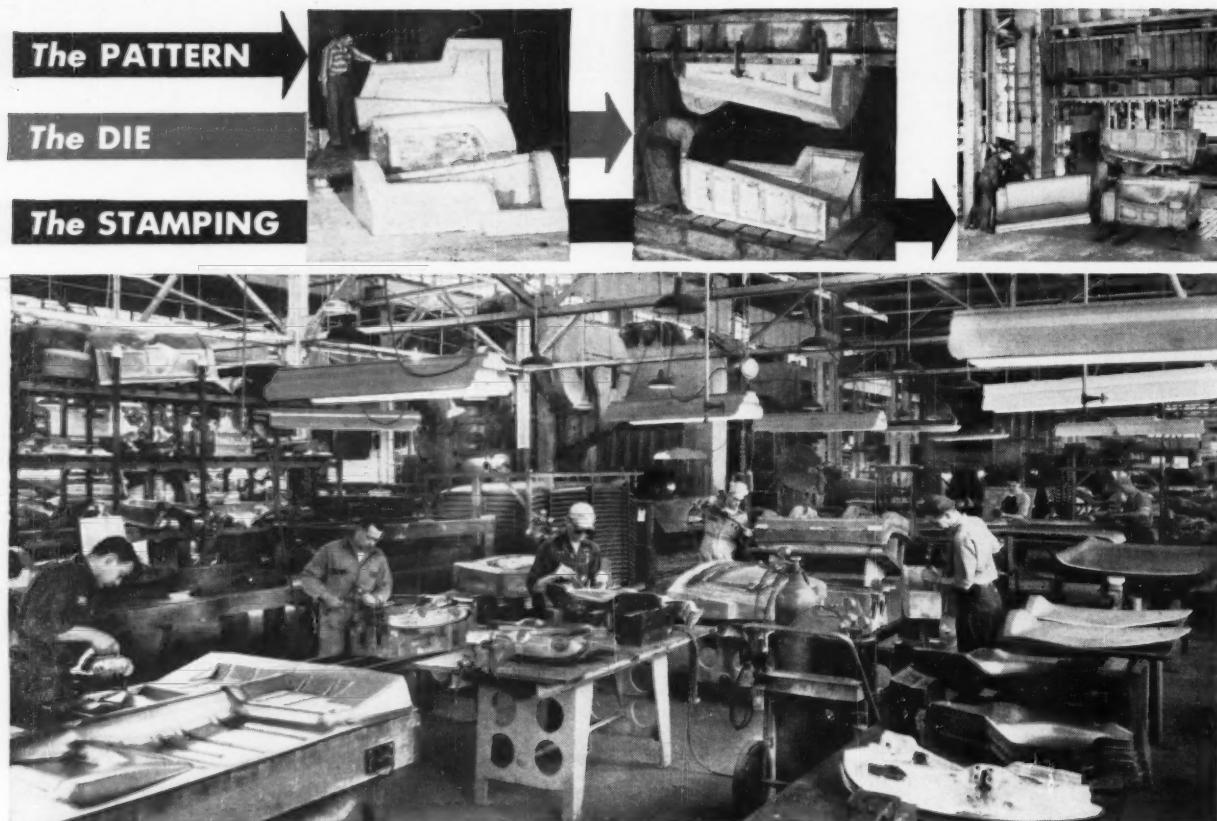
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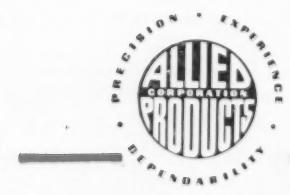
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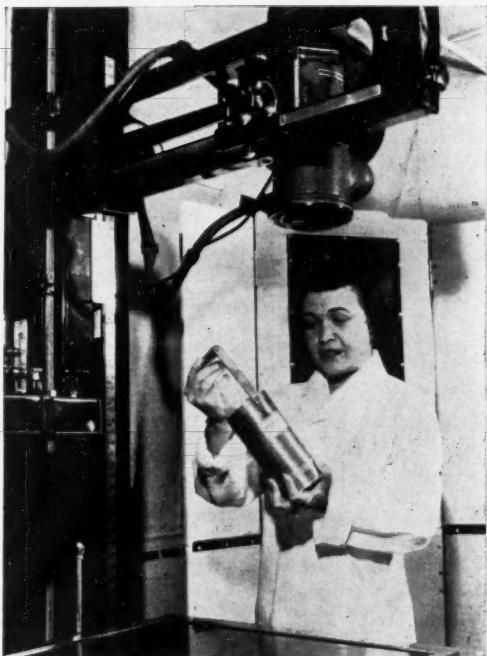
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Powerful thulium isotope permits design of tiny, inexpensive "X-ray machine." Here, Argonne National Laboratory technician compares new device with standard medical X-ray unit.

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Every company must answer questions like these to safeguard product quality, satisfy its finicky customers, and guide future planning.

It is not surprising, then, to find new testing laboratories sprouting all over the country, and to see testing methods—and particularly non-destructive ones—occupying a high place on the agenda of technical society meetings. At the Society of Automotive Engineers Summer Meeting, for instance, there were papers on ultrasonic, electrical resistance, magnetic particle and dye penetrant inspection, and radiography—with plenty of new developments to discuss.

Taking radiography as an example, new developments include X-rays in color, crystalline detectors, new and improved X-ray machines (they range in size from 50-pound portables to room-sized Betatrons; in power from 5,000 to over 30 million volts), and new radioisotopes for use as radiation sources.

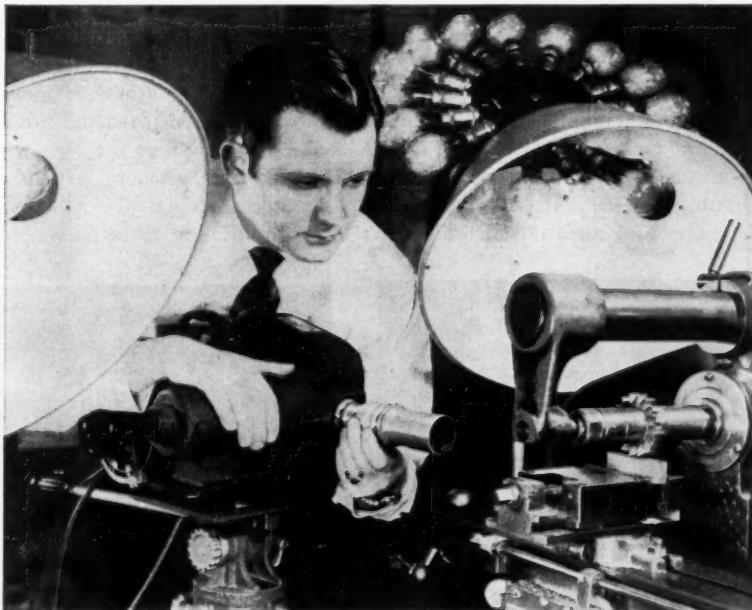
At least four different radioactive isotopes in addition to radium itself can now be had for looking inside castings, studying joint design, checking assemblies, and many other jobs.

New equipment is being designed to take advantage of the isotopes' special qualities. According to Argonne National Laboratory, the thulium isotope used in its newly designed unit (photograph, left) provides radiation comparable in energy to that produced by a 100,000-volt X-ray machine. That's why the unit itself can be so small.

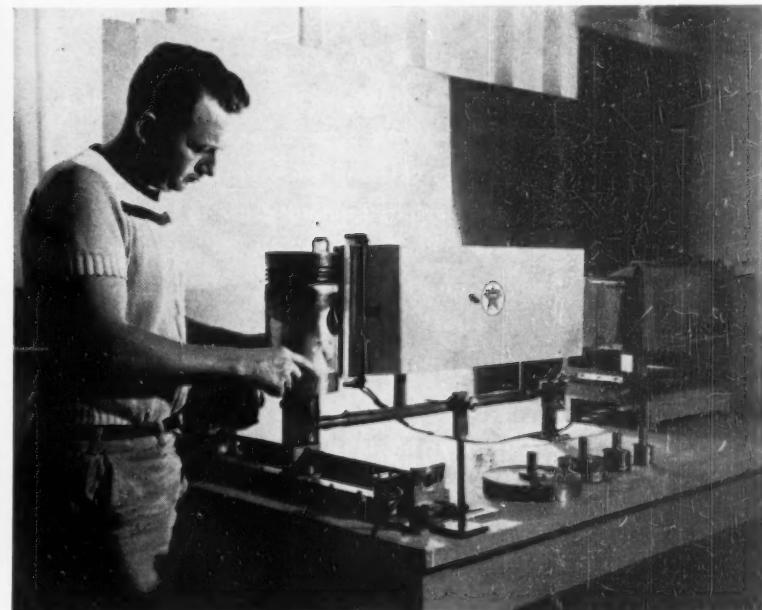
(Thulium, incidentally, is element 69—symbol Tm—one of the rare earths; not to be confused with thallium, Tl, element 81. Thallium is a rare metal, too, and relatively little-used, but it is produced commercially—see *Modern Industry*, May 1951, page 48.)

As James H. Bly of X-Ray Incorporated told the SAE, "The development of radiation sources has been carried so far that the variety available is almost bewildering." But, as he also pointed out, each has its place. When depth of penetration required, cost, safety, and other factors are taken into consideration, the choice is not hard to make.

Actually, there is relatively little competition



Photography plays a key rôle in many non-destructive tests. This U. S. Steel engineer hunts machinability data with high-speed camera and stroboscope. Similar set-ups may be used to study machine parts in operation.



New mounting device helps Texaco photograph curved piston surface without optical distortion, study detergent action of new Havoline oil. Piston rotates as it moves along track, and picture is taken through slot in box.

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even between the various non-destructive testing methods. Each is best suited to a particular type of job—and all (including such techniques as those pictured here) are worth investigation when products are on trial.

An excellent review of non-destructive testing methods is contained in the 1952 ASTM Edgar Marburg lecture by Robert C. McMaster of Battelle Memorial Institute, copies of which may be purchased from the American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa., for \$1.50. Also obtainable from the ASTM are a comprehensive technical publication (STP 145—1953), priced at \$2, and several other publications.

Sturdy coats from metal powders

A hard tungsten coating applied with a paint brush. . . .

Wear-resistant and heat-resistant surfaces for titanium parts. . . .

A machinable filler and build-up compound for aluminum. . . .

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The tungsten coating, which is said to be self-lubricating as well as hard and tough, combines fine particles of metallic tungsten with a plastic resin and molybdenum disulfide. Known as "Tungstide," it is now being tested on relay-latching members for electronic computers, duplicating machine parts, and plastic dies and fixtures. Lockrey Company, Southampton, N. Y., makes several formulations (air-drying for wood and plastics; heat-curing for metals; and special high-temperature types).

The hard surfacing materials for

titanium, just patented by Metal Hydrides Incorporated, Beverly, Mass., are made by combining—in a volatile liquid—powdered titanium or titanium hydride with finely divided particles of copper, cobalt, nickel, or silver; and carbides or nitrides of chromium, tantalum, titanium, tungsten, or zirconium. Coated parts are heated to the point where the liquid evaporates and the metallic elements melt. Then, says MHI, a diffusion bond is formed between the base metal and the molten elements of the coating, and the hard carbide and nitride particles migrate to the surface.

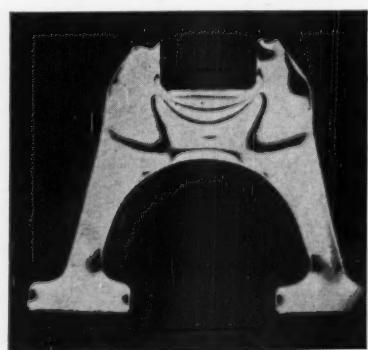
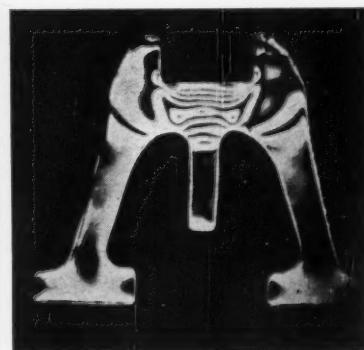
Aluminum powder forms the basis for a finish and filler for sheet metal joints and die surfaces made by Smooth-On Manufacturing Company, Jersey City, N. J. Here, an epoxy resin which hardens by polymerization at room temperature is the binder. Smooth-On claims the compound, "Metaset A-101," forms a stable, machinable surface that will not warp or crack.

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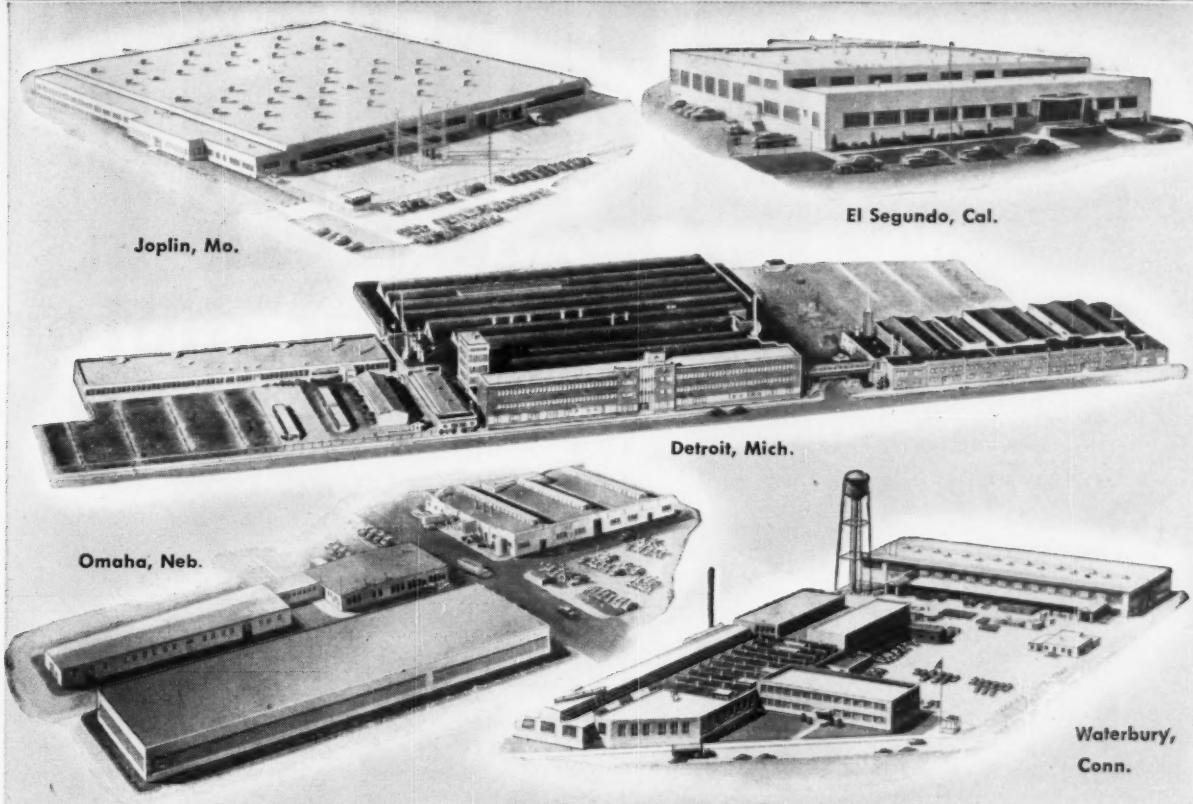
An indication of the potential for



Transparent plastic models help Chambersburg Engineering build bigger and better drop hammers. Here, stress patterns of two frame section designs are compared. One at right shows less strain under load, was chosen.

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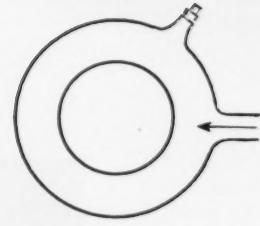
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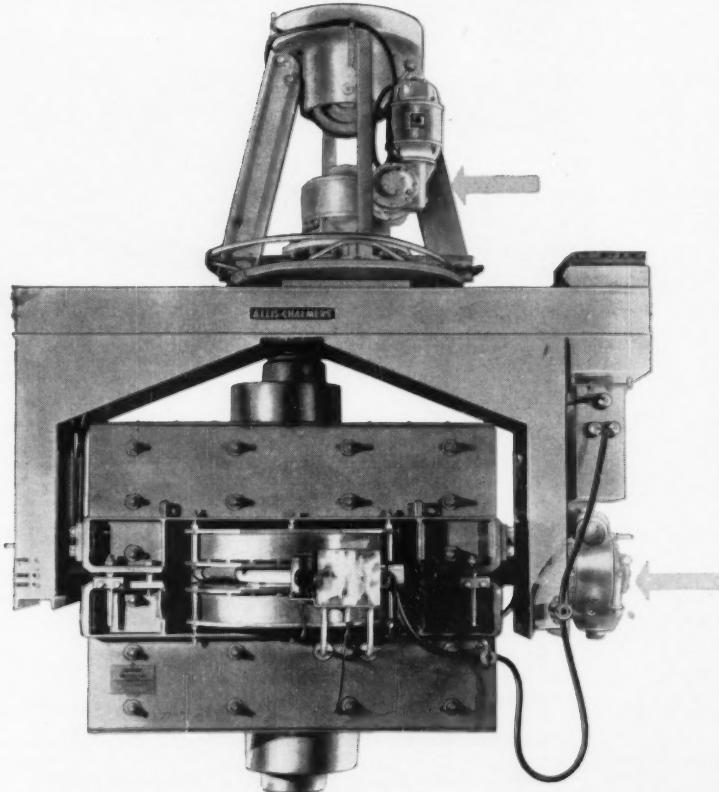
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Speed Reducers



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Valve Drives



The massive Betatron pictured on this page is a product of Allis-Chalmers Manufacturing Company of Milwaukee, Wisconsin. It produces 24 million electron volts—enough to x-ray up to 20 inches of solid steel. Accurate performance called for "the right speed—the right power."

Since 1932 Allis-Chalmers top management—Engineers, Designers, Purchasing Agents and Executives—have afforded Janette engineers the opportunity to assist in determining the type and design of Gear Motors or Speed Reducers to render the most efficient performance.

That such co-operation has been highly successful is seen in the fact that the inter-

nationally famous Allis-Chalmers organization has purchased many thousands of JANETTE Gear Motors and Speed Reducers.

Every manufacturer has the opportunity to capitalize on JANETTE's nearly one-half century of specialized experience. Each year hundreds of leading firms are adding their names to an ever-increasing list of customers who have found JANETTE performance an asset in the sale of their products.

Consult your Classified telephone directory for the name and address of your nearest JANETTE Representative or write direct for complete information covering JANETTE's new merchandising plan and prices.

Janette Electric Mfg. Co.

Morton Grove, Illinois

• Subsidiary, Gerity-Michigan Corp.

rigid vinyl plastic piping and plant equipment is the number of big-name companies that have recently entered the field—among them, many of the major steel-makers. They know plastic piping could be strong competition for their standard products, and prefer “joining” to trying to lick the trend. Rubber manufacturers, too, are in the field with both feet—as producers of the plastics themselves (notably polyvinyl chloride), and as fabricators. (See photograph below, and “Plastics in your Plant,” *Modern Industry*, April 1952, page 50.)

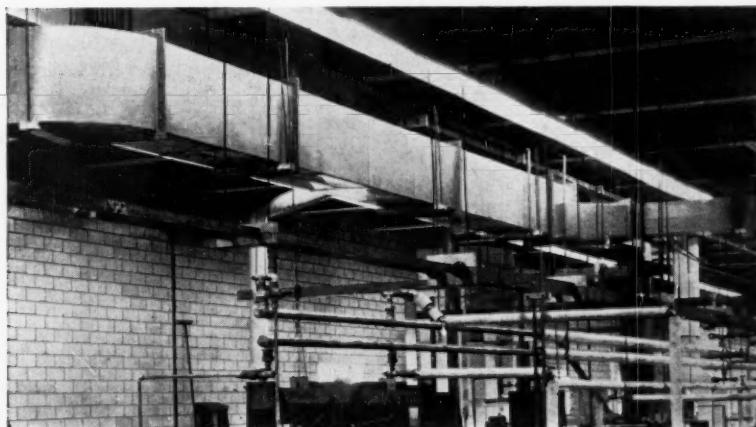
At the same time, plastic-forming techniques are beginning to reach the point where they are adaptable to standard metalworking production lines. At the National Plastics Exposition, for instance, B. F. Goodrich Chemical Company showed an experimental set-up for continuous heating and forming of

its Geon rigid polyvinyl chloride plastic sheeting—to make housings, instrument cases, and other formed parts. As the photograph (below) shows, a standard conveyor belt, far-infra-red heater, and press are joined together in a simple but effective line that might be set up in almost any plant.

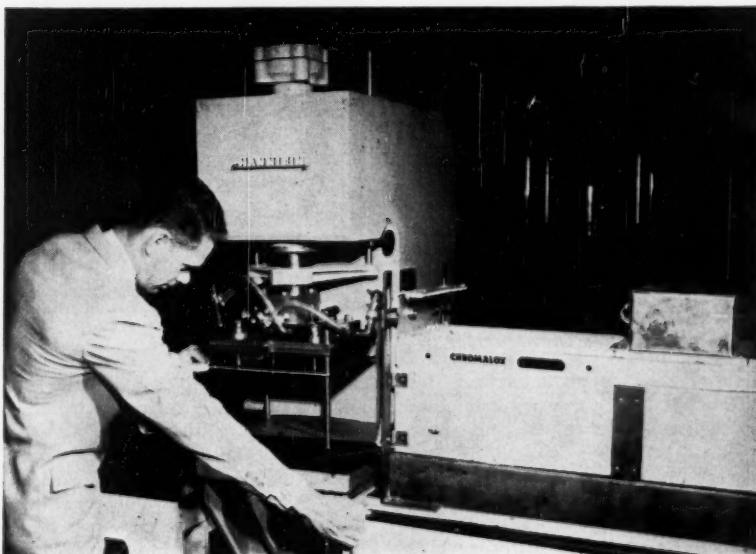
Naturally, it's too much to expect any new material to slide right into an old slot without adjustments or headaches. But rigid plastics are being fitted to a host of plant and product jobs. If you haven't yet explored their possibilities, take a look at them now.

Purer water for process use

Odorless, tasteless, germ-free water for textile dyeing, chemical and drug formulation foods, beverages, and the like, is promised by a novel



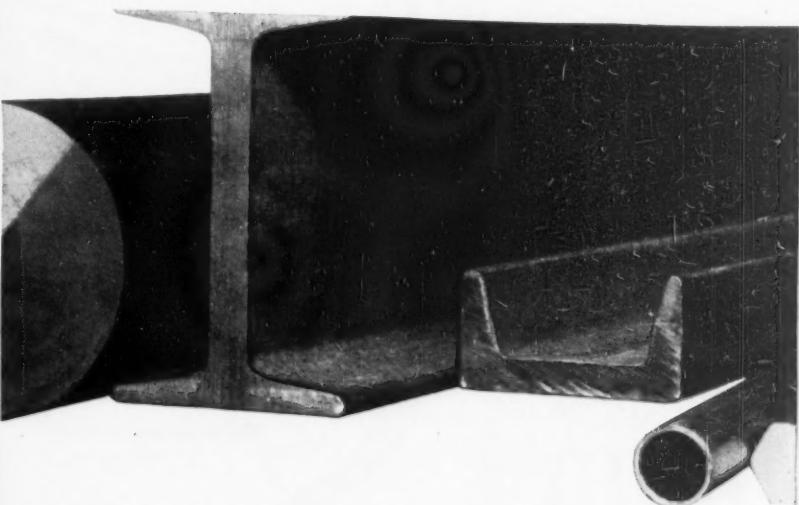
Corrosion resistance of rigid vinyl plastics brings them many plant jobs. These ceiling-mounted Seilon ducts carry acid fumes from plating tanks.



Adaptability of rigid vinyls to mass-production techniques is demonstrated by B. F. Goodrich Chemical. In experimental set-up, sheet, fed from roll, moves under heater, is molded, cut off automatically on ten-second cycle.



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water treatment method now being introduced by Salem-Brosius, Inc., 248 Fourth Avenue, Pittsburgh 22, Pa. Known as the "Hyla Process," it is a catalytic treatment using silver salts to produce water that is not only germ-free, but, says Salem-Brosius, will stay that way for some time after treatment.

Johns Hopkins University scientists who have been studying the Hyla Process for S-B do not expect it to replace chlorination across the boards. As they point out, silver treatment is more expensive, affects only those bacteria containing sulfur-bearing enzymes, and is not effective in saline, acid, highly ammoniated, or oxygen-free waters. But, where the presence of chlorine is undesirable, and when the lasting qualities of the treatment are important, the Hyla Process should be well worth considering.

They've got your number

Slide charts and dial calculators are convenient, useful—and often fascinating. There seems to be no end to the variety that can be devised to aid materials selection, product design, and plant operation. Here are ten new ones—all free on letterhead request.

Cast aluminum alloys: Slide chart shows compositions, physical

and mechanical properties for sand and permanent mold cast alloys. Howard Foundry Company, 1700 North Kostner Avenue, Chicago 39, Ill.

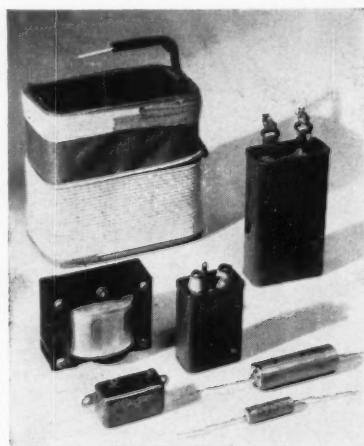
Weight calculator: Slide chart for copper, yellow brass, stainless steel, and aluminum gives direct readings of tube, rod, bar, and sheet weights for standard widths and thicknesses, in lengths up to 1,000 feet; charts conversion factors for many other common copper alloys. Chase Brass & Copper Company, Waterbury 20, Conn.

Steel castings: Slide shows analyses, physical properties of cast stainless and other corrosion resistant alloys. Lebanon Steel Foundry, Lebanon, Pa.

Paneling: Slide chart gives number of strips or pieces which can be obtained from various Preswood panel cuts. Masonite Corporation, Chicago 2, Ill.

Surface active agents: Double-dial circular calculator is designed to aid formulation of paints, cleaners, cosmetics, lubricants, soldering fluxes, and many other emulsion-type compounds. Industrial Chemicals Department, Atlas Powder Company, Wilmington 99, Del.

Fasteners: Slide chart for use with powder-actuated tools indicates proper size and type of fastener and powder load for wood, metal, and concrete of various thick-



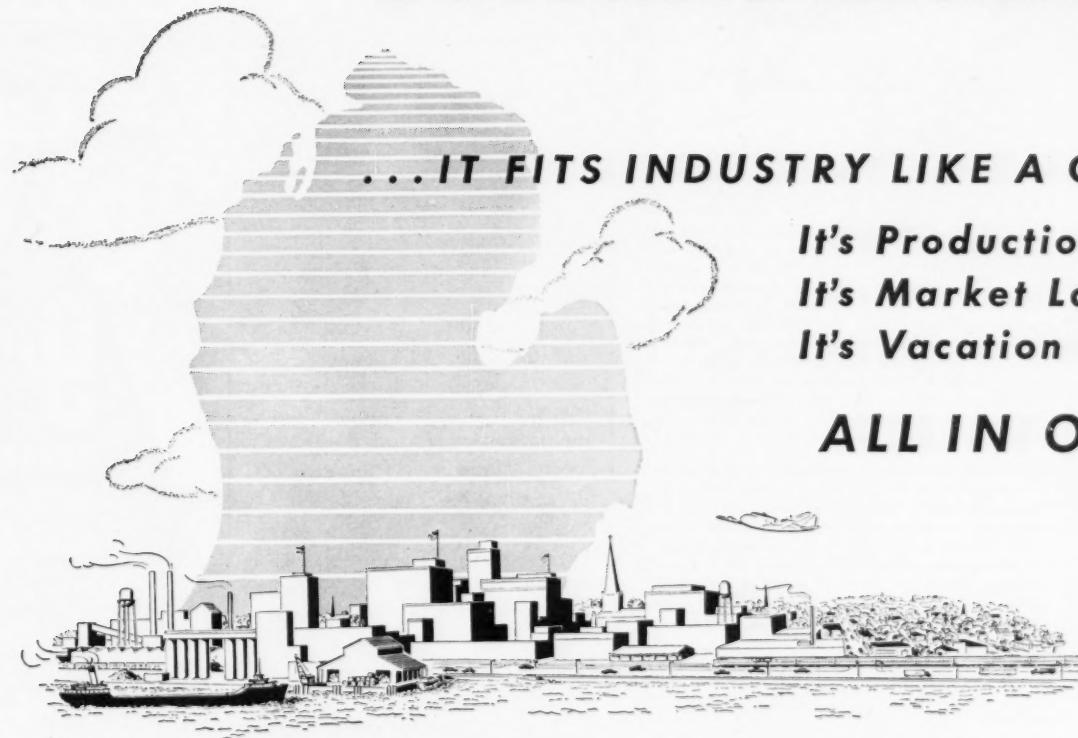
New film makes them better

From evening slippers to solenoid coils Mylar, Du Pont's new polyester film is proving its ability to stand abuse and maintain its good looks at the same time. With a tensile strength, in one mil thickness, of 23,500 pounds per square inch, good electrical properties, excellent resistance to many solvents and inorganic acids, and an ability to stand temperatures well above the boiling point, it is permitting design of smaller, more efficient electrical com-

ponents like those pictured at the left, and the packing of corrosive chemicals—even while still hot—as in the lined drum at the right. In addition, because it can be printed and metallized, it can be made into metallic yarn, evening shoes, and other consumer products. Du Pont has been supplying Mylar in pilot quantities, but expects its new \$10 million plant to be in operation this Summer, making the material freely available for the first time.



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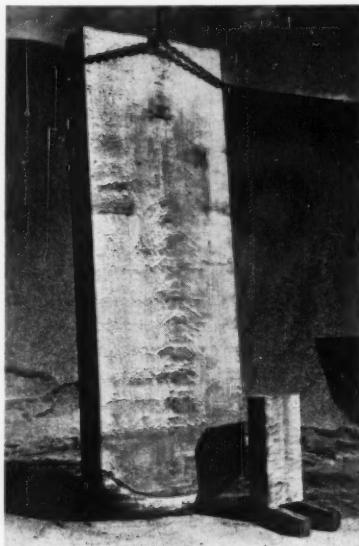
nesses. Ramset Fasteners, Inc., 12117 Berea Road, Cleveland 11, Ohio.

Valves: Arrangements and settings for multiport valves are diagrammed and demonstrated by movable dials on plastic chart. Meter and Valve Division, Rockwell Manufacturing Company, Pittsburgh 8, Pa.

Milling: Slide chart suggests speeds and feeds for cutters $\frac{1}{8}$ to six inches in diameter, as used on standard ferrous and non-ferrous metals. Clarkson, Inc., 320 Ontario Street, Toledo 2, Ohio.

Tank capacities: Slide indicates capacity in gallons for various depths of round tanks $1\frac{1}{2}$ to 30 feet in diameter; rectangular tanks two to 20 feet long, two to six feet wide. Hauser-Stander Tank Company, Cincinnati 32, Ohio.

Floor cleaning: Dial indicator tells which type of cleaning compound to use, what coverage to expect, and how long to allow for drying, on concrete, terazzo, wood, linoleum, rubber and asphalt tile floors. Multi-Clean Products, 2277 Ford Parkway, St. Paul 1, Minn.



Magnesium: growing up

The opening of Dow Chemical Company's big new rolling mill at Madison, Ill., should spur rapid expansion of this light metal's use. Until now, the little 150-pound ingot shown in the foreground was the largest that could be handled on any mill in the country. But, an 84-inch reversing hot mill installed in the new plant can accommodate ingots up to 2,000 pounds in size. That means more sheet material can be produced and bigger parts can be made. Coupled with recent developments in fabrication and finishing, it shows magnesium is growing up—ready to take its place as a major industrial material.

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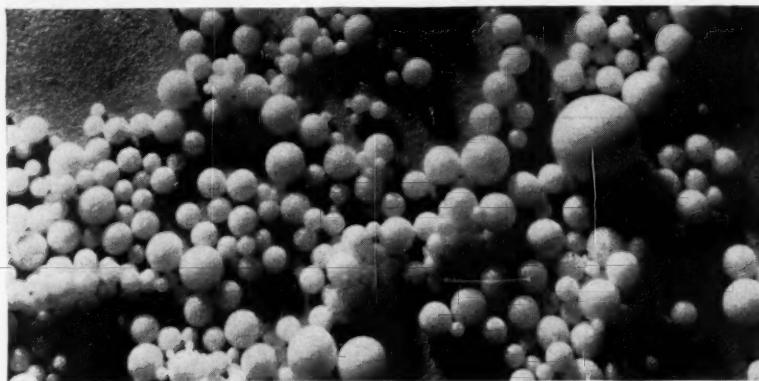
Produced by
**SOCIETY OF INDUSTRIAL
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HANDLING ENGINEERS**

111 W. Jackson Blvd., Chicago 4, Ill.

New formable foam

Tiny polystyrene plastic "pearls" that expand when heated, and will stick together under moderate pressure to form lightweight molded parts, are expanding the usefulness of this attractive material. Developed by Koppers Company, Pittsburgh, Pa., the new foam is machinable and gluable and has a low

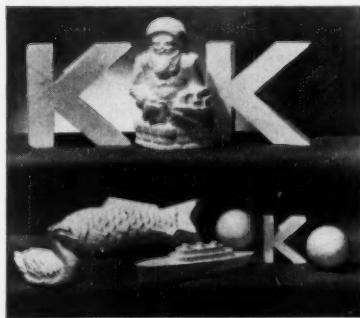
moisture absorption (owing to its closed-cell structure). The protective "skin" formed on the outer surface helps molded parts resist crushing and scoring. Until now polystyrene foam has been obtainable only in pre-expanded logs or blocks which had to be cut to shape (see November 1953, page 54).



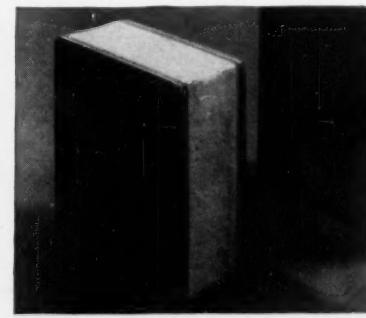
Allowed to expand freely, foamed polystyrene "pearls" look like this. When expanded in mold, granules stick together to form cohesive structure.



Molding equipment need not be expensive. Koppers uses this simple press to form expanded polystyrene boat. Steam or hot air can be used for heating.



Suggested applications for new foam range from decorative items (left) to structural sandwiches (right). It has good dielectric properties, too.



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CASE STUDY

Breaking Into a New Market?

JAMES K. BLAKE
Marketing Editor

WHAT do you have to know before you break into a new market? What modifications of your present product will be required? How can you estimate unit sales and dollar volume? What facilities will have to be expanded, which tools redesigned? How much new financing will you want? Can you use the same distribution channels, the same sales techniques? How about advertising—rifle or buckshot approach?

There are two ways to answer these questions—the easy way and the hard way. The easy way takes a minimum of planning, relies on the intrinsic worth of the product to fill up holes as they develop. The hard way takes planning, research, scheduling . . . and patience.

If you are planning to enter a new market, here are some of the bases you should cover. The planning pattern is that used by the new General Electric Appliance Controls Department in Morrison, Ill. The only unique feature about it is its thoroughness. There is little drama and little excitement . . . until you notice the incredibly short time lapse between the original concept and the initial marketing phase.

The Morrison operation is a direct result of the well-publicized company program of operating autonomy. Appliance controls had been produced by GE for some time for their own use in a number of plants and a small fraction of total sales were made through commercial channels. In late 1951 it looked to GE management as though it would be smart to centralize controls production in a small satellite plant in Morrison, Ill., which had been operating in low gear and was being managed from Schenectady. But the big question was: Is there enough of a market to justify a large-scale break-through

into the commercial appliance control business?

Research made available figures showing that by 1962 dishwasher sales would increase 375 per cent, electric driers and garbage disposers would jump 400 per cent, dehumidifiers would increase 450 per cent, and home air-conditioning systems would boom 4,900 per cent. And the figures on obsolescence looked good, too. The refrigerator market was saturated about 89 per cent. Manufacturers were prodding sales by promoting automaticity—which means more controls.

The market was obviously there, but the next question was: What could GE do about it? Here are the main elements of their planning.

First they established the rough scope of the new business. It seemed to fall naturally into four main categories: Refrigeration controls, heating and air-conditioning controls, controls and timers for other major appliances, and special-purpose controls. Then, they set up a theoretical organization chart and within 60 days began to fill it out by hiring key personnel.

Meanwhile, a number of studies were going on simultaneously. Bits and pieces of product lines that had been manufactured in a number of widely separated departments and divisions were carefully analyzed. Some items were outmoded, some overpriced, and a few were frankly uncompetitive. The other operations were glad to unload them.

Marketing studies were launched on each of the four major product categories. Take refrigerators as an example. One study analyzed the manufacturers in terms of capacity. Standard statistics were compiled on current sales and projected through 1960 for each manufacturer based on external data and individual manufacturer's estimates. Then the total market was

projected with percentage distribution shares for each refrigerator manufacturer—the new Appliance Control Department's potential customers.

Co-ordinated with that were studies of refrigeration control devices, each product projected to the 1960's on the basis of estimated demand. Included were analyses of components, costs, and totals in terms of units and price.

Market Research also began studying published data about existing competitors to check on the relative share of the current market going to each.

Meanwhile, other groups were in the field contacting refrigerator manufacturers. Their object was to discover what was coming in the way of new design. Another important mission was to evaluate manufacturers' opinions of existing GE appliance controls and to uncover those that must be redesigned.

As these studies were developing on each of the four product lines, management began to evaluate the entire existing product line with an eye to new products, and the most profitable ones were planned in first.

Condensed into outline form for easy reading, the types of research required for each product line would look like this:

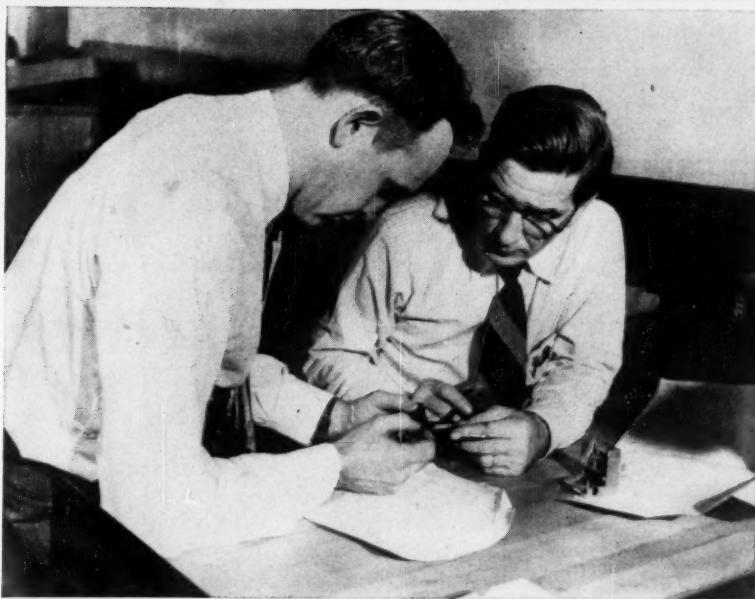
I. Marketing (to give information on the following).

1. *Specifications of the product (may include size, mounting, life, special features, and so on).*
- (a) Features and modifications required by customers.
- (b) Required manufacturing cost, sales price, gross margin.



Before breaking into the appliance and heating control business with a full product line (above), GE planned for months and found that . . .

HERE ARE THE



Design engineer and model shop foreman check hand-made product which has developed from preliminary sketches. These, in turn, based on engineering and market research, were carefully appraised by sales specialists.



Planning section, with production date roughly determined and capacity estimated until 1960, works out tool design schedules, material flows, and begins drafting complete layout of all plant manufacturing facilities.

HEADS YOU HAVE TO PUT TOGETHER



ABOVE Engineering Development Schedule involves product planning based on extensive market studies. The meeting brings together top brass — finance, production, planning, manufacturing, marketing, and personnel.

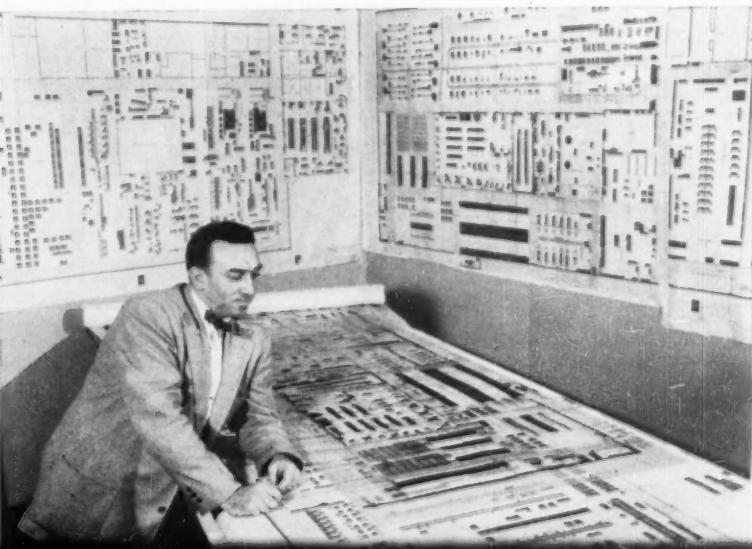


ABOVE Dealers had to be convinced that controls were not overengineered, as much of the trade had believed, before manufacturers would buy them. GE proved it in nation-wide, take-apart sessions with over 7,000 dealers.

BELOW Customers, original equipment manufacturers, were invited to plant to discuss their own requirements. All products had to be mass produced, yet flexible enough to adapt to individual engineering and style spec's.



BELOW Three blueprints illustrate integrated planning. Left on wall is original layout. On right wall is print of nearly complete expansion. Overlay on table shows next growth step based on estimated 1960 demand.



Schedule Before You Leap

From rough sketches to full production, every step of application and design was carefully planned in sequence to dovetail with market studies described in text.

Schedule shown here could apply to most companies entering a new market

or planning in a new product. In the GE Appliance Control Department, liaison between engineering, production, and sales during product development is the responsibility of the manager of product planning who reports directly to the marketing manager.

PARTS AND SCHEDULED STEPS	BEGIN	COMPLETE	RESPONSIBILITY
PART A—Design & Planning			
1. Exploratory DA			Engineering
2. Sketch Drawings			Drafting
(a) Sketch Drawings to Sales			Drafting
3. Make Hand-made Samples			Model Shop
(a) Hand-made Samples to Sales			Model Shop
4. Test Hand-made Samples			Lab. Test
5. Preliminary Planning & Round Table Cost			Engineering
6. Preliminary Management Review			Engineering
7. Issue Inspected Drawings, SI's, & CEM			Engineering
8. Packaging, Labels, Instruction Book			Engineering & Sales
9. Renewal Parts Data			Engineering
10. Final Planning			Planning & Methods
11. Final Cost			Cost
12. Management Review & Release			Management Comm.
13. Tooling DA			Engineering
14. Plant Appropriation Request			Manufacturing Engr.
PART B—Tooling & Production			
1. Field Trial Run (— Units)			Manufacturing
2. Prints & Requests to Tool Mfg.			Planning
3. Tool & Equipment Drafting			Tool Manufacturing
(a) Die Drafting			Tool Manufacturing
(b) Jig & Fixture Drafting			Tool Manufacturing
(c) Mfg. Equipment Drafting			Tool Manufacturing
(d) Test Equipment Drafting			Tool Manufacturing
(e) Gage Drafting			Tool Mfg. & Inspect.
4. Approve Tool Orders			Engineering
5. Tool & Equipment Making			Tool Manufacturing
(a) Dies			Tool Manufacturing
(b) Molds			Tool Manufacturing
(c) Other Tools & Fixtures			Tool Manufacturing
(d) Mfg. Equipment			Tool Manufacturing
(e) Test Equipment			Tool Manufacturing
(f) Gages			Tool Mfg. & Inspect.
6. Sample Material			Production
7. Sample Checking, Tool Rev. & Approval			Inspection
8. Sales Forecast			Marketing
9. Raw Material & Purchased Parts			Production
10. Tool-made Parts			Production
11. Assembly Tool & Equip. Revision			Tool Manufacturing
12. Tool-made Samples			Planning
(a) — Units for Lab. Test			Planning
(b) — Units for Pilot Run			Lab. Test
13. Lab. Test of Samples			Manufacturing
14. Pre-Prod. Rel. Run (— Units)			Engineering
15. Prod. Release Meeting			

DA: Development Authorization

SI: Standard Engineering Instructions

CEM: Cost Estimate forms giving estimated expense of each manufacturing operation

(c) When required.

2. *Market potential.*

(a) New or established market.

(b) Estimated industry unit and dollar sales to 19XX.

(c) Estimated factory unit and dollar sales to 19XX.

(d) Potential customers.

(e) Internal/external sales.

(f) Closed markets.

3. *Pricing situation* (what is required to be competitive).

4. *Sales methods.*

5. *Distribution.*

6. *Design, production, and sales promotion schedule.*

II. Financial.

1. *Investment required.*

(a) Engineering.

(b) Tools.

(c) Marketing expense.

2. *Profit.*

(a) Manufacturing cost.

(b) Proposed selling price.

(c) Established gross margin.

III. Competition by companies.

1. *Sales price.*

2. *Percentage of market.*

3. *Advantages.*

4. *Disadvantages.*

5. *Modifications.*

IV. Engineering.

1. *New product—specifications.*

2. *Design contribution* (major, minor, none).

3. *Features.*

4. *Patent situation.*

5. *Engineering man-hours required.*

V. Manufacturing.

1. *Manufacturing load.*

2. *Equipment required.*

3. *Number of forms.*

4. *Time required to put into production.*

While these were being processed and evaluated, marketing and advertising began to realize they had a tough job on their hands. Hardly anyone knew that GE was in the control business, beyond manufacturing for their own products. The situation was particularly acute in the heating industry.

Heating equipment manufacturers were mildly sympathetic to the idea of a new control supplier—the GE reputation helped considerably—but they told marketing management frankly that they wouldn't touch a control unless the dealers and servicemen gave the OK signal. So sales specialists began to sound out the trade. Here they found their biggest stumbling block. The trade either didn't know that a full line of controls was available or, if they did realize it, thought the controls were overengineered.

The original equipment manufacturers had



Exit end of Mahon Five-Stage Metal Cleaning and Rust Proofing Machine. Note two parallel conveyor lines pass through this unit.

Mahon Hydro-Filter Spray Booths with modern "HYDRAIRE" Flood Sheets are staggered right and left hand to permit spraying on opposite sides of parts without turning.

**More RESIDENTIAL HEATING UNITS Receive Their
FINE FINISH in a COMPLETE MAHON FINISHING SYSTEM!**

Here is another Complete Mahon Finishing System designed, built and installed to produce specific results on a particular product. The system is ultra-modern in every respect . . . it includes a two-conveyor line five-stage Metal Cleaning and Rust Proofing Machine, a Dry-Off Oven, a Cooling Tunnel, two Hydro-Filter Spray Booths, and an overhead Finish Baking Oven which permits use of the floor space below. Direct Gas-Fired Units provide the heat for both Dry-Off and Finish Baking Ovens. Temperature control is automatic throughout. If you have a finishing problem, or are contemplating new finishing equipment, you, like many other alert manufacturers, will find that Mahon engineers are better qualified to advise you on both methods and equipment requirements . . . and better qualified to do the all-important planning, coordinating and engineering of equipment—which is the key to fine finishes at minimum cost. You will also find that Mahon equipment is built better for more economical operation over a longer period of time—this is an important factor which should be carefully considered when comparing initial cost figures. Mahon's thirty-two years of experience in this highly specialized field covers thousands of Complete Finishing Systems including Dip, Flow Coating, and Spray Equipment for every conceivable product painted on a production basis. See Sweet's Plant Engineering File for complete information, or write for Catalog A-654.

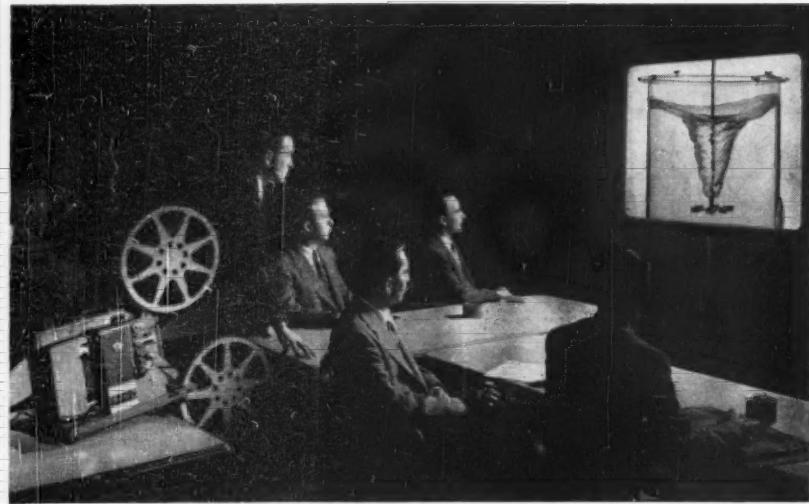
T H E R. C. M A H O N C O M P A N Y

HOME OFFICE and PLANT, Detroit 34, Mich. • WESTERN SALES DIVISION, Chicago 4, Ill.
Engineers and Manufacturers of Complete Finishing Systems—including Metal Cleaning, Pickling, and Rust
Proofing Equipment, Hydro-Filter Spray Booths, Dip and Flow Coaters, Filtered Air Supply Systems
and Drying and Baking Ovens, Cooling Tunnels, Heat Treating and Quenching Equipment
for Aluminum and Magnesium, and other Units of Special Production Equipment.



The Mahon Direct Gas-Fired Finish Baking Oven in this installation is located overhead to permit 100% use of floor space below.

MAHON



How movies lighten the load for Lightnin® Mixer salesmen

When you sell heavy equipment like an industrial mixing machine, you can't carry the product around in your brief case. In the case of LIGHTNIN MIXERS, some of which weigh a ton or more, selling problems are further complicated because every mixer is made to solve a specific fluid-mixing problem. Selling the engineering principles involved is a prerequisite to selling the equipment itself.

So the Mixing Equipment Company, makers of LIGHTNIN MIXERS, let movies do the demonstrating. Their 16mm. film, "Fluid Mixing," dramatizes—in color and sound—the efficiency of modern mixer design.

"THE BIGGEST BENEFIT from our movie program," a Mixing Equipment representative says, "is that all important buying influences in a customer company can be concentrated in a single presentation. One recent showing, for example, pulled in an audience of 250 engineers. That's a lot of buying influence. And it represents a tremendous saving in selling costs, too."

Kodascope Pageant Sound Projectors are used by company representatives to show the film. They like Pageants because maintenance problems in the field are eliminated by the exclusive pre-lubrication feature. They find Pageants are easy to set up and operate, too. And the projector's amazingly faithful sound reproduction is mighty important when showing the film to large audiences.

For dramatic selling that's convenient, economical, and effective, use movies shown with

16mm. Pageant Projectors. Ask your Kodak Audio-Visual Dealer for a free demonstration or mail the coupon for full details.

Movies help keep people on the move...in UNITED MAINLINERS



To interest travelers in seeing California by air, United Airlines recently made a 16mm. Kodachrome movie, "A World in a Week—California."

It's an unusual movie with a built-in birdman's-eye view. Many unique shots in the film were taken by two remote-controlled 16mm. Cine-Kodak Special II Cameras mounted in aluminum boxes outside the plane.

During the past few months, the film has been shown to hundreds of schools, clubs, and travel-minded groups. Already United has noticed an increase in bookings.

This is the sixth traffic-boosting United Airlines film to be made with Cine-Kodak Special II Cameras. Perhaps you, too, have a selling or public-relations story that can be told more effectively in movies.

EASTMAN KODAK COMPANY, Dept. 8-V, Rochester 4, N. Y.

Please send me the name of the nearest Kodak Audio-Visual Dealer and complete information on equipment checked:

Kodascope 16mm. Pageant Sound Projectors Cine-Kodak Special II Camera

NAME _____ POSITION _____

COMPANY _____

STREET _____

CITY _____ STATE _____
(Zone)

Kodak

also demanded a network of distributors to serve as exchange points for the controls, but potential distributors indicated that they would be inclined to look the other way unless their dealers liked the controls.

The top marketing staff knew that to make their schedule (see page 78) they had to convince the trade fast. Here's how they did it.

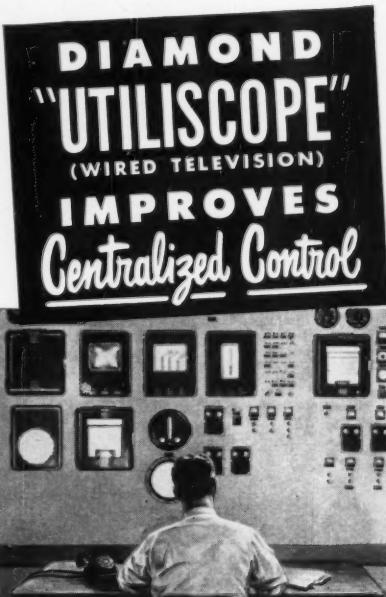
An eight-page ad introduced the control to the trade, followed up by educational two-page ads in selective media. A decision was made to subordinate individual products in these early ads to an over-all, industry-wide approach. When a specific product ad appeared this slug was always in it: "The Appliance Control Department is devoted exclusively to developing and producing complete control for the appliance and home heating industries." The idea was to establish as quickly as possible that the Department was a center of control progress. A series of "Designers Digest" ads in a vertical trade publication helped to consolidate an over-all industry approach.

But it was fully recognized that advertising, in this instance, would create interest and awareness, but not the acceptance that manufacturers demanded. The only way to build acceptance was to get out and familiarize the servicemen in some way with the new control.

The answer the marketing department came up with was the GE Bandwagon. The heating trade was familiar with the itinerant service school and there was nothing new about the technique. GE, however, tricked it out with colorful staging, a 20-minute motion picture selling the quality story, models, prizes, and—the real meat in the Bandwagon from the marketing angle—a thorough product take-apart session emphasizing a quality dear to every serviceman—simplicity. About 7,000 members of the trade were reached personally and the pay-off was that 95 per cent expressed willingness in writing to accept the controls on future installations.

With this proof in hand there was little difficulty in franchising distributors and a mailing program began immediately directed to the heating manufacturers, telling the story of dealer acceptance. The new market was cracked.

THE END



Operator in central control room of large power station "SEES WHERE HE CAN'T LOOK". Here he watches flame conditions in boiler furnace, stack smoke discharge, and water level in boiler on "Utiliscope" screens of control panel.

Centralized control is much more effective if it brings a SENSE OF REALISM into the control room... if the operator can actually see what is going on outside his range of vision instead of depending upon indirect interpretations of operating conditions. The electric power industry has accepted the "Utiliscope" as an important factor in achieving better centralized control (as shown above).

The "Utiliscope" has many other uses in industry where its low cost is quickly amortized by improved operation, greater safety or savings in labor. It is surprisingly simple and requires no special skill for installation and operation. Stability and reliability are exceptional. For additional information use coupon below.



"UTILISCOPE" RECEIVER "UTILISCOPE" CAMERA

**DIAMOND POWER SPECIALTY CORP. DR
LANCASTER, OHIO**

Please send me without obligation a copy of new Bulletin No. 1136 showing how the Diamond "Utiliscope" (Wired Television) is being used to cut costs, improve operations and promote safety.

Name _____
Company _____
Address _____

6701

DIAMOND POWER SPECIALTY CORP.
FIRST IN INDUSTRIAL TELEVISION
LANCASTER, OHIO
OFFICES IN 39 PRINCIPAL CITIES
Diamond Specialty Limited — Windsor, Ontario
Since 1903, Diamond has Manufactured Quality Equipment for Industry

Here and There in Business

WHAT'S NEW

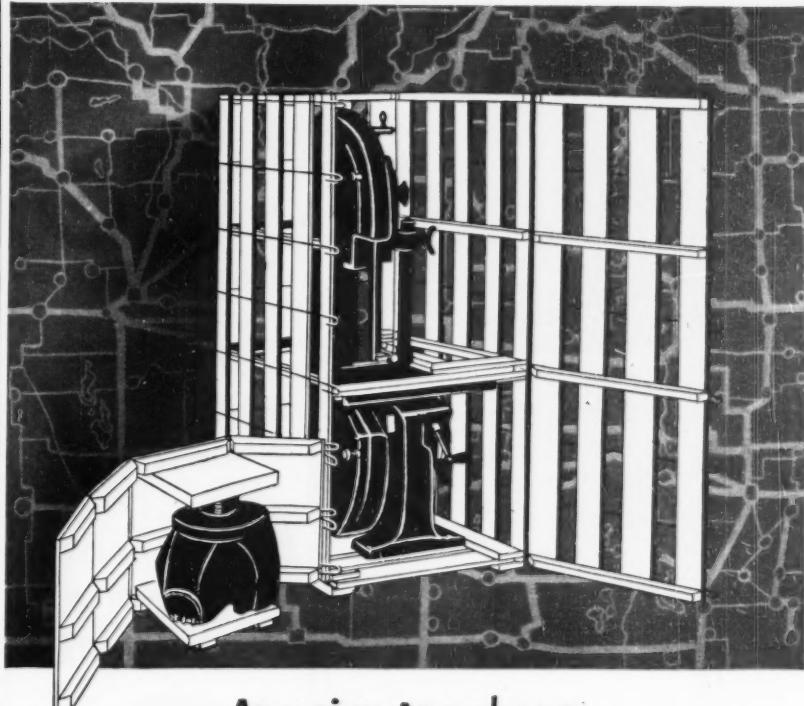
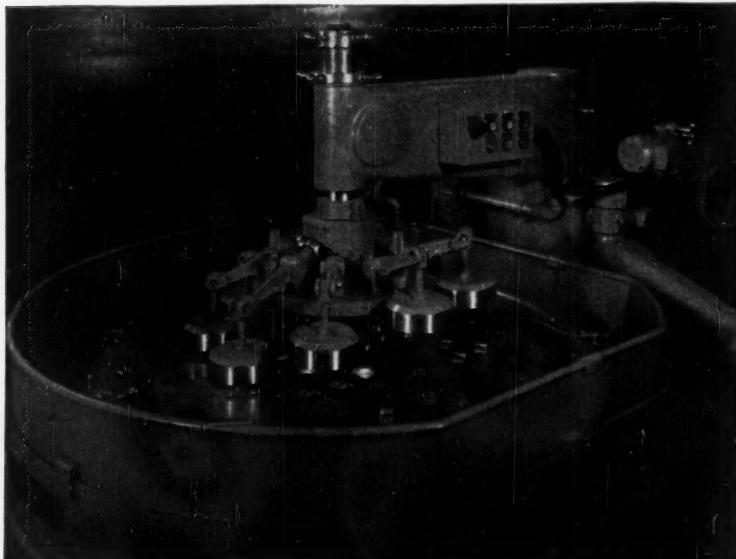
AS OBSERVED BY THE EDITORS

Operation T-1 they called it—and it was an impressive demonstration of what steel can do. This was the name U. S. Steel Corporation and Chicago Bridge & Iron Company gave to their full-dress pressure vessel tests at the CB&I Birmingham plant a month ago. Designed to prove the fitness of quenched and tempered steel plate—specifically, U. S. Steel's *Carilloy T-1*—of pressure vessels, and to show that certain specifications may be modified, the demonstrations involved testing-to-destruction of a series of pressure vessels built by CB&I. The test results, and the impressive booklet prepared to help viewers record and study them, are well worth the attention both of potential users and of suppliers of other materials.

Faster, smoother finishing of metal parts is promised by this new, single-face flat lapping machine. It has a semi-automatic feed, uses bonded abrasive laps, and operates continuously except when laps are

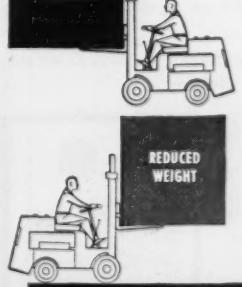
being trued. Even this interruption is speeded by making the truing device adjustable and providing an opening in the work holder that makes it possible to true the lap while the holder is in place. The standard model pictured here is designed for loading and unloading by an operator, but Norton Company, Worcester, Mass., which makes the machine ("Hydrolap No. 36-F") says it is adaptable for fully automatic loading and unloading.

Volatile corrosion inhibitors have made a real place for themselves in industry—protecting everything from tools to engines. They're used in formulating hydraulic fluids and protective paints; and as impregnants for wrapping papers. And powdered crystals are available for spray-gun application as in the photograph, page 82, top. But, until now, the individual user has been neglected. Only recently has the liquid form become available in small-size aerosol cans (see September 1953, page 56), and



**Any size, Any shape
No matter where it's bound**

SHIP IT WIREBOUND!



There is practically no limit to what you can ship in a Wirebound... for Wirebound is a most versatile container. Wirebounds combine the strength of steel wire with the resiliency of wood in limitless combinations. For example, look at the rock bit box on the left. This small, rugged Wirebound eliminated previous stacking failure and in-transit damage losses. So did the Wirebound band saw crate on the right. For greater safety and greater savings, investigate Wirebounds... today!

MAIL THIS COUPON NOW!

WIREBOUND BOX MANUFACTURERS ASSOCIATION

Room 1151, 327 South La Salle Street, Chicago, Illinois

Have a sales engineer give me the whole story

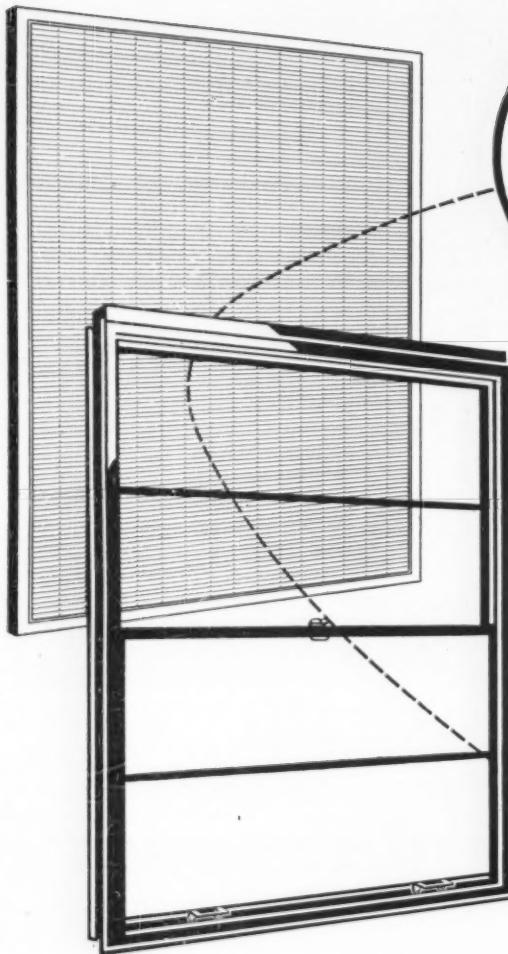
Send me a copy of "What to Expect from Wirebounds"

Name _____

Firm Name _____

Address _____

City, Zone and State _____



Rx
for summer
comfort:

Borg-Warner
KoolShade
Sun Screen
TRUSCON
Double-Hung
Steel Windows

Light and air
IN
heat and glare
OUT

Most efficient of all shading devices, Borg-Warner KoolShade Sun Screen is now available for use with equally famous Truscon Double-Hung Steel Windows.

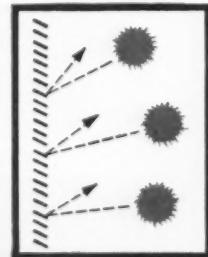
Now—homes, schools, hospitals and other institutions, commercial and industrial buildings equipped with Truscon Double-Hung Steel Windows can have all the added benefits of KoolShade.

A bronze wire miniature outside venetian blind, KoolShade blocks up to 90% of the sun's heat rays. Lets in light and air, shuts out heat and glare. Alone keeps rooms as much as 15° cooler, and with air conditioning, greatly reduces the load on the system, thus cuts cost. Provides complete visibility, controls glare, keeps out insects.

Developed and produced by Borg-Warner's Ingersoll Products Division, KoolShade Sun Screen is a striking example of how—

B-W engineering makes it work
B-W production makes it available

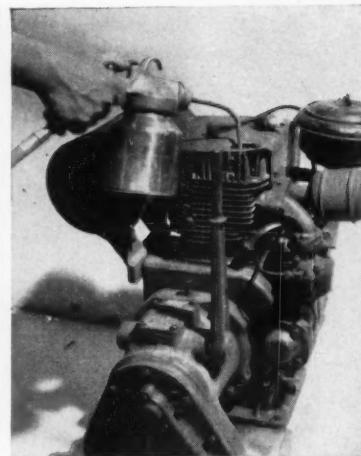
Cross section of KoolShade showing how it blocks sun's heat rays at various elevations.



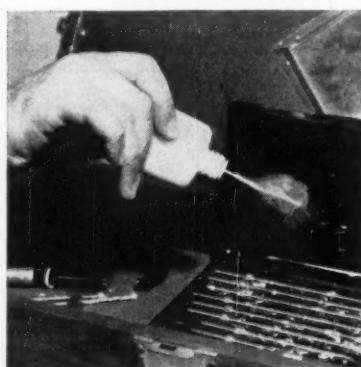
Almost every American benefits
every day from the 185 products made by

BORG-WARNER

THESE UNITS FORM BORG-WARNER, Executive Offices, Chicago: ATKINS SAW • BORG & BECK BORG-WARNER INTERNATIONAL • BORG-WARNER SERVICE PARTS • CALUMET STEEL • CLEVELAND COMMUTATOR • DETROIT GEAR • FRANKLIN STEEL • HYDRALINE PRODUCTS • INGERSOLL PRODUCTS INGERSOLL STEEL • LONG MANUFACTURING • LONG MANUFACTURING CO., LTD. • MARBON MARVEL-SCHEBEL PRODUCTS • MECHANICS UNIVERSAL JOINT • MORSE CHAIN • MORSE CHAIN CO., LTD. • NORGE • PESCO PRODUCTS • REFLECTEL • ROCKFORD CLUTCH • SPRING DIVISION WARNER AUTOMOTIVE PARTS • WARNER GEAR • WARNER GEAR CO., LTD. • WOOSTER DIVISION



squeeze bottles of powdered crystals like the one pictured below still aren't on the market. Shell Oil Company, 50 West 50th Street, New York 20, N. Y., which makes the basic materials, sells the powder only in one-pound lots or more. It's a chance for an alert packager to



step in. Added incentive: Shell's newest VCI compound (number 250) is said to be faster-acting, longer lasting, than any previously available; flows readily, won't clog dispenser.

Cerro Bolivar is a name currently receiving a lot of attention in steel circles. The story of the discovery of this vast source of iron ore and the facilities needed for development is unusually well told in a new booklet, "The Orinoco Project," available from the Link-Belt Company, 307 N. Michigan Ave., Chicago 1, Ill. Schematic drawings, maps, and erection photographs show both ore and port facilities.

Equipment with the shakes is never an efficient performer (see cover story, March 1954). But measuring vibration is not always a simple matter. To make it possible to take accurate readings, even in the presence of a magnetic field, General Electric's Meter and Instru-

**HAVE
PITY
ON YOUR
"PUSHERS!"**

GIVE THEM LIGHT, MODERN

MINIMAX
Pusharounds

Made of the lightest weight
structural metal,

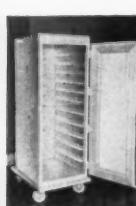
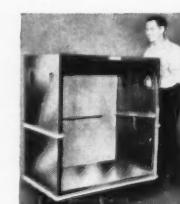
MAGNESIUM

They're important cost-savers, *reducing dead-weight as much as 75%*, sometimes converting a two-man-push into a one-man-job, when replacing the outmoded pushcarts made of heavy metal or wood. Describe what your pushers are now pushing by phone or letter to B&P. We'll send you pictures and designs, with estimated weight reduction and costs.

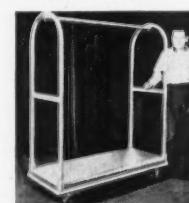
Janitor Truck Push-around for factory materials handling, including scrap and refuse.



Popular Pusharound is the Merchandise Stock Truck. Has rubber, bumper-strips.



Pusharound Shelf Truck for in-store movement of merchandise.



The Push-around "Rambler" for garments. Can be used on the sales floor.

For anything that's lifted, carried, or pushed, weight saving may mean important cost-saving—or stepped-up sales appeal. Ask the advice of B&P engineers about redesigning in Magnesium.

BROOKS & PERKINS, Inc.

Pioneer Magnesium Fabricators

1946 W. FORT ST.

TAshmoo 5-5900 DETROIT 16

ADJUST-A-DOCK

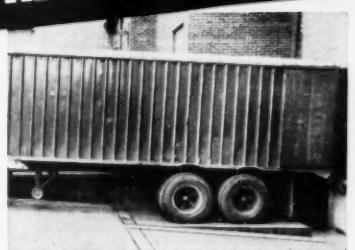


Make Dock Handling A Low-Cost Production Line Operation

You can reap the tremendous savings which accompany effortless, straight-line flow across your shipping docks. ADJUST-A-DOCKS are instantly raised or lowered to meet the level of any over-the-road truck or rail car. Note these unique construction and operating features.

- 1 Full-range raising and lowering, controlled by push button is instantaneous.
- 2 Extra-heavy rounded layover arms provide vertical compensation for truck spring deflection.
- 3 Ruggedly constructed to resist dead, live and impact loads. Surfaced with checkered plate.
- 4 Unique bridge design compensates for truck bed sloping either to right or left.
- 5 Each ADJUST-A-DOCK has its own power unit which is easily accessible, economical to maintain.
- 6 Models available with 10,000 and 20,000 capacities, become part of dock when not in use.

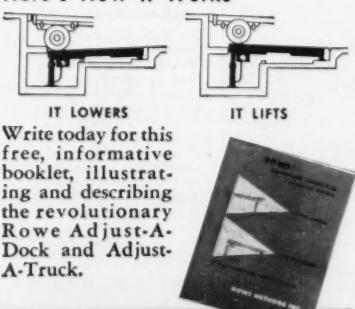
ADJUST-A-TRUCK



Now, When You Can't Adjust Your Docks Because of Lack of Space, You Can Adjust Your Trucks

Here is a unit that is set into the pavement in front of the dock and by means of a heavy-duty electric hydraulic system, it adjusts each vehicle to dock height; its capacity, 40,000 lbs.

Here's How It Works



ROWE METHODS, INC.

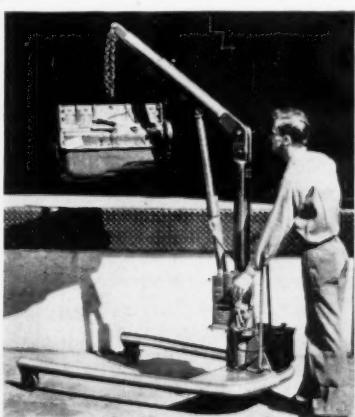
2534-S Detroit Ave.
Cleveland 13, Ohio

ment Department, Schenectady, N.Y., has developed the new direct-reading portable vibration meter pictured here. Using a barium titanate accelerometer in place of the usual coil-type pickup, and operat-



ing on regular hearing aid batteries, it is light in weight (only about 5 pounds), and easy to service. The pistol grip and trigger-type switch are designed to make it easy to operate as well.

Small, efficient, and labor-saving are the claims for this mobile hoist that can be changed into a stationary one by switching the mounting. Manufactured by the Unit Manufacturing Company, 1229 Harmon Place, Minneapolis 3, Minn., the Unit Electrically-Pow-



ered, Hydraulic Utility Hoist, rated at 5,000 p.s.i., is reported to be able to lift a 2,000 lb. load four feet by the mere pressing of a button. The mobile mounting is a four-wheel floor truck.

Workshop ideas aplenty are found in a new illustrated booklet prepared for distribution through employee reading racks—or just for the executive who likes to "build his

OPERATING CASH can make



the difference between Profits and Losses

In so many cases the difference between profits or losses is adequate operating cash. Lack of operating funds forces companies to take the expensive route in doing business:

Passing up trade discounts

Buying uneconomically

Losing sales because sufficient credit cannot be extended to the trade

Using high-cost, old machinery or equipment

Carrying incomplete inventories

Charging a premium for their product to compensate for higher internal costs

CASH and special plans geared to your operation come from Walter E. Heller & Company under their diversified financing services. Heller plans do not interfere with management or

profits. What you make is yours. Yet—you can use as little as \$25,000 or as much as \$3,000,000, for months or years. The cost is economical for you pay only for the money you use as your need varies.

Our clients are nation-wide, established manufacturers, wholesalers, distributors in many different industries.

Our volume of business—in excess of Six Hundred Million Dollars annually.

Our experience—34 years of operation.

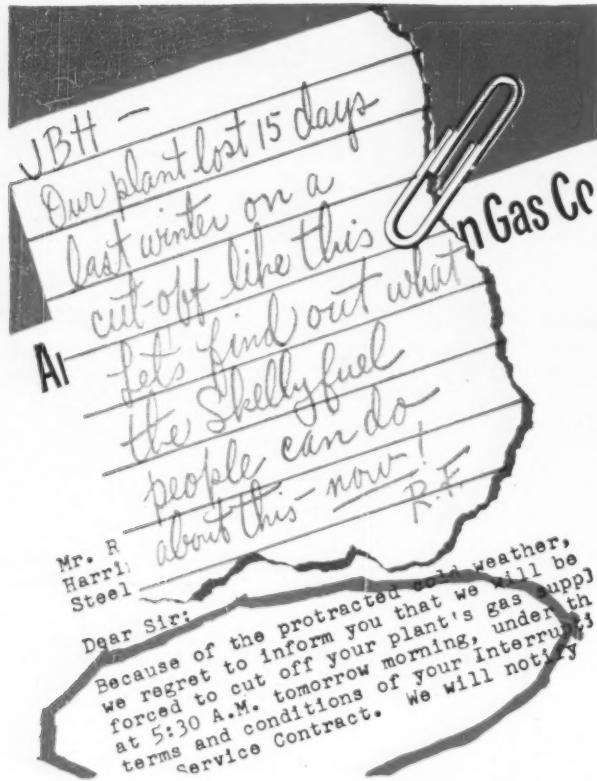
To learn the facts, write for a free copy of our brochure "Operating Dollars for Every Business."

At the same time you are invited to write in strict confidence about financial problems in your own business to which our services might apply.



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Don't let this happen to YOU!

Would a sudden cut-off of your plant's normal fuel supply deal a knockout blow to your production and your profits?

Get positive protection against costly fuel-gas interruptions and plant shutdowns! Do as scores of leading manufacturers are now doing: protect your plant with a modern propane or butane gas standby plant—designed, engineered, constructed and serviced by Skellyfuel.

We'll be glad to demonstrate to you how the Skellyfuel "one-package" proposition can solve your emergency fuel problems. A call or a letter will arrange a meeting to suit your convenience.

Skellyfuel covers everything

from blueprint to BTU!



Skellyfuel Industrial Division, Skelly Oil Company
605 W. 47th Street, Kansas City, Mo.

own." The second in a series (the first covered *Tools and Materials*), the new booklet, *Your Home Workshop*, is published by Mercer Publishing Company, 16 East 52 Street, New York 22, N. Y. Single copies are 12 cents; and prices range down to 4 cents each for large orders. In quantities of 10,000 or more, for instance, copies are 6 cents each. John David Beinert is the author.



A new compound for preparing concrete and cement flooring prior to sealing and refinishing, is claimed to make the job easier, faster, and safer. Rust-Oleum Corporation, 2799 Oakton Street, Evanston, Ill., which makes the material, "Surfa-Etch," says it is fume-free, non-inflammable, and harmless to metal surfaces with which it might come in contact.

A versatile ceiling panel that combines radiant heating, cooling, and noise control is now offered by Burgess-Manning Company, 5970 Northwest Highway, Chicago 31, Ill. Measuring only a little more than three inches from the outer surface to the top of its suspension channel, the panel unit combines an enameled aluminum snap-on facing, an acoustic-thermal blanket which can be selected to meet individual needs, and a water coil; yet it weighs only 2½ pounds a square foot, even when its water coil is filled. Plaster ceilings, Burgess-Manning points out, weigh nearly four times as much.

Mechanical mail preparation at the rate of 3,500 to 4,500 pieces per hour, is the claim of Inserting and Mailing Machine Company, Phillipsburg, New Jersey, for their newest mass mailer. Two additional features, a built-in postage meter and a power-driven stacker, make possible complete preparation of all types of mail with a greater capacity. The mass mailer will now gather multiple enclosures, insert them in envelopes, seal, stamp, count, and stack.

HOW TO HAVE TWO SALESMEN FOR EVERY PROSPECT



... Makes Contacts When Your Salesman Isn't There
... Helps Him SELL When He Is!

"Many of the declines in business could have been prevented by efficient salesmanship," reports Dun's. ONE proven way to make selling more efficient — to remind both customers and prospects of you and your products every hour of the day — is through an Executive Line Advertising Specialty or Business Gift.

Every Executive Line item STAYS on a desk, or in a pocket, because its recipient is sure to find it extra valuable, extra useful, extra long-lasting. An Executive Line Specialty, with your name, slogan or trademark on it, serves as both a good will ambassador and a tireless "second salesman."

UNUSUAL
BILL CLIPS • LETTER OPENERS
TAPE MEASURES • LIGHTERS
NOVEL PAPERWEIGHTS • CALENDARS
PEN SETS • POCKET KNIVES
ASH TRAYS AND MANY OTHER ITEMS
The EXECUTIVE LINE products are available from most good Advertising Specialty firms or mail coupon TODAY attached to your letterhead.

Triple Threat Letter Opener No. 1102
Stainless Steel Handle — folding 8" ruler, a mm. measure and a protractor. Back, a decimal equivalent table and reduction scale. Sample — \$2.50 postpaid

Pocket Slide Caliper No. 1045
Multiple use tool. 18-8 Stainless Steel. Etched calibrations in inches and metric system and decimal equivalent table. Genuine leather case. Sample — \$2.50 postpaid

The Executive 22 Year Calendar Bill Clip No. 510
It's NOT just a Pocket Calendar, but an easy-to-operate calendar that is good for 22 years, combined with a beautiful Bill Clip. Calendar's black enamel lettering deeply etched into the metal, contrasts with the polished stainless steel. Sample — \$1.50 postpaid

The EXECUTIVE LINE, 136 W. 54 St., New York 19, N.Y.
Send free catalog and prices. I enclose \$_____ for following blank samples (check).
No. 300 No. 1102 No. 1045 No. 510

Name _____
Firm's Name _____
Address _____
City _____ Zone _____ State _____

MI-B-54
THIS COUPON MUST BE ATTACHED TO LETTERHEAD



Get Roof-High Storage at Floor-Level Costs

with



"Air-Rights" fork trucks

Why scatter your loads over costly floor space leaving a vacuum overhead? E-P fork trucks will high tier them so you can profitably use all overhead space. There are 8 models in the E-P "Air-Rights" series, in increments of 1,000 lbs. between 2,000 and 10,000 lbs. Electrically powered, they give dependable operation for pennies per day. All parts are quickly accessible for fast, preventive maintenance. Their design features compactness and easy steering.

If you want fork trucks built to match the quality of the finest machinery in your plant, investigate the E-P "Air-Rights" series. Write The Elwell-Parker Electric Co., 4315 St. Clair Ave., Cleveland 3, Ohio.



Self-contained and adaptable to either vertical or horizontal mounting, the new automatic drill unit pictured here has many features to simplify installation, operation, and maintenance. Switches, valves, and



relays are built in, so only two connections (air and electricity) are needed for installation. It weighs less than 90 pounds, has ten spindle speeds with either a $\frac{1}{2}$ or $\frac{1}{3}$ hp motor. Chuck capacity ranges from No. 60 drill to $\frac{3}{8}$ inch. Auxiliary equipment includes an hydraulic feed control for drilling hard materials and an electronic repeat cycle timer for deep hole drilling. Du-more Company, Racine, Wis., makes it.

A new adding machine of the ten-key variety features a visual indicator, showing figures before they are entered or added. The makers, Friden Calculating Machine Company, Inc., 2350 Washington Avenue, San Leandro, Cal., have made two other changes which they believe will speed up operation. The cipher key has been moved from the bottom to the left side and the center row of numeral keys (4, 5, and 6) are concave to facilitate touch operation.

Strong, tough plastic helps safeguard lighting in hazardous areas. A new portable, explosion-proof floodlight, made by Safe Lighting, Inc., 91-03 Astoria Blvd., Jackson Heights, N. Y., has a special air and water-tight casing of Formica plastic which allows use of the light in areas where volatile gases are present. As SL and The Formica Company proudly point out, "It is the only portable floodlight ever to receive the approval of the Underwriters' Laboratories, Inc. for use in all hazardous areas . . .

AUTOMATIC ELECTRIC COMPANY—A GREAT NAME IN COMMUNICATIONS



get more done with P-A-X

If it's cutting down overhead you're after, a P-A-X Business Telephone System will do it! Its completely automatic *inside* telephone service cuts right through costly delays and confusion.

Let's say you've installed P-A-X telephones for the use of your executives and key employees. Virtually every fact and instruction which keeps your operations rolling can then be exchanged in seconds . . . at the turn of a dial . . . without a man leaving his desk. The walking, waiting, fatigue and errors your people can thus by-pass each day will add up to significant savings. You'll feel the benefits of P-A-X communication throughout your operations!

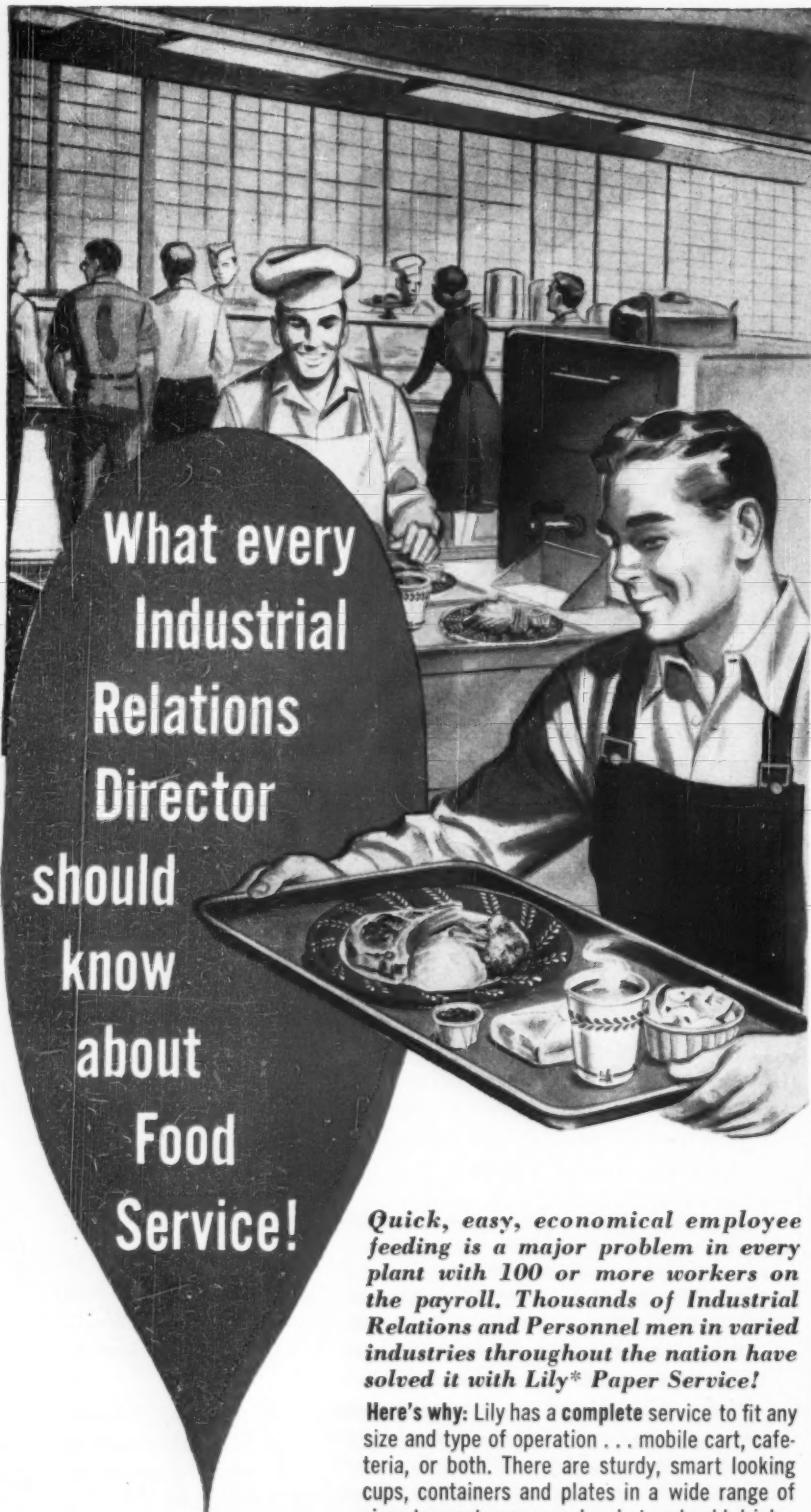
Thousands of delighted users in every type and size of business are now enjoying the benefits of P-A-X. To get complete facts, call or write—Distributor in U. S. and Possessions: Automatic Electric Sales Corporation (HAYmarket 1-4300), 1033 West Van Buren Street, Chicago 7, Illinois. *Offices in principal cities.*



P-A-X **business**
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AUTOMATIC **ELECTRIC**

Write for this useful information today! P-A-X users have helped us prepare illustrated case studies describing P-A-X in daily use for: a financial institution; a processing plant; a school; a railroad; an oil company. Specify the case studies which interest you.



What every Industrial Relations Director should know about Food Service!

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and the only one permitted for use in hydrogen, acetylene, and manufactured gas areas."

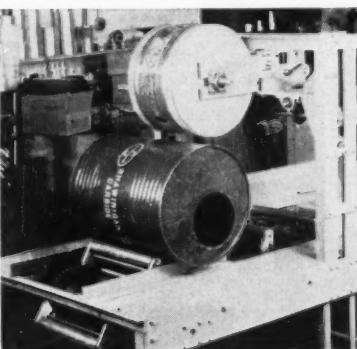
A space-saving conveyor system for warehouse and storage areas has been developed by the Alvey Conveyor Manufacturing Company, 9301 Olive Street, St. Louis,



Mo. By using a series of inclining and declining conveyors, to build up units like the one pictured here, material is moved, raised, and lowered to desired levels without interfering with normal storage and operations.

A new sealing agent for envelope flaps has been introduced by National Adhesives, 270 Madison Avenue, New York 16, N. Y. A remoistening resin emulsion which is deposited in a thin, clear film, it is said to provide stronger seals for all type of paper. National says it resists curling and sticking under humid conditions, too; and predicts its use on labels, sealing tapes, decalcomanias, and many other products of this type.

Drum printing at the rate of fifteen per minute is the claim of the Industrial Marking Equipment Company, 454 Baltic Street, Brooklyn 17, N. Y., for its new machine that handles 100 and 250 pound drums. Drums are manually loaded on a cradle which positions them under the print wheel. The latter revolves, prints the drum, and the drum is then automatically ejected.



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COMING NEXT MONTH

DUN'S REVIEW and Modern Industry

An Answer to:

WHAT'S WRONG WITH OFFICE MANAGEMENT?

The September issue will focus on a subject of major concern to nearly every executive in business and industry. With costs continuing to rise and sales in most lines not yet breaking through the clouds, executives are paying more attention than usual to office management. In next month's issue, you will find your thinking along these lines stimulated by answers to such questions as—

- In what ways is the office failing to serve top management, and who is to blame?
- What trends are developing that may make the office manager as important as the sales manager?
- What are the facts of office operations that a non-office executive should know?
- Why are the vast majority of offices under-mechanized?
- How can you discover the most conspicuous areas of waste in office operations?
- What areas of office management will electronic developments affect?
- What educational efforts are being made to increase over-all office efficiency?
- What are the major stumbling blocks to the purchase of office equipment?
- How can you check key points in your office operations?
- What are the current trends in the design and control of office forms?
- How does top management appraise the rôle of office management?
- Where are the greatest opportunities for cost-cutting in most offices?
- What criteria can be set up to judge efficient office management?

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Head Office • 55 WALL STREET • New York

71 Branches in Greater New York

57 Branches Overseas



Statement of Condition as of June 30, 1954

ASSETS

Cash, Gold and Due from Banks.....	\$1,385,694,206
United States Government Obligations.....	1,602,710,324
Obligations of Other Federal Agencies.....	40,332,173
State and Municipal Securities.....	575,223,849
Other Securities.....	78,411,528
Loans and Discounts.....	2,202,228,486
Real Estate Loans and Securities.....	230,682
Customers' Liability for Acceptances.....	27,838,032
Stock in Federal Reserve Bank.....	10,500,000
Ownership of International Banking Corporation.....	7,000,000
Bank Premises.....	30,768,737
Other Assets.....	5,706,940
<i>Total</i>	<u>\$5,966,644,957</u>

LIABILITIES

Deposits.....	\$5,455,443,656
Liability on Acceptances and Bills. \$66,511,778	
Less: Own Acceptances in Port- folio.....	<u>36,578,047</u>
Due to Foreign Central Banks. <i>(In Foreign Currencies)</i>	<u>29,933,731</u>
Items in Transit with Branches.....	<u>11,349,000</u>
Reserves for:	
Unearned Discount and Other Unearned Income.....	<u>346,350</u>
Interest, Taxes, Other Accrued Expenses, etc.	
Dividend.....	<u>22,573,793</u>
Capital.....	<u>35,550,824</u>
(7,500,000 Shares—\$20 Par)	
Surplus.....	<u>3,750,000</u>
Undivided Profits.....	<u>150,000,000</u>
<i>Total</i>	<u>407,697,603</u>
	<u>\$5,966,644,957</u>

Figures of Overseas Branches are as of June 25.

\$487,484,642 of United States Government Obligations and \$12,852,700 of other assets are pledged to secure Public and Trust Deposits and for other purposes required or permitted by law.

(Member Federal Deposit Insurance Corporation)

Affiliate of The National City Bank of New York for separate
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Boston to Detroit.....	\$1.40
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Not these chair leg tips . . . molded of BAKELITE Polyethylene. They're kind of soft-surfaced . . . not quite bouncy, just comfortably flexible and quiet. Still, they're good and tough, and will wear a long time. Come in different colors, too.

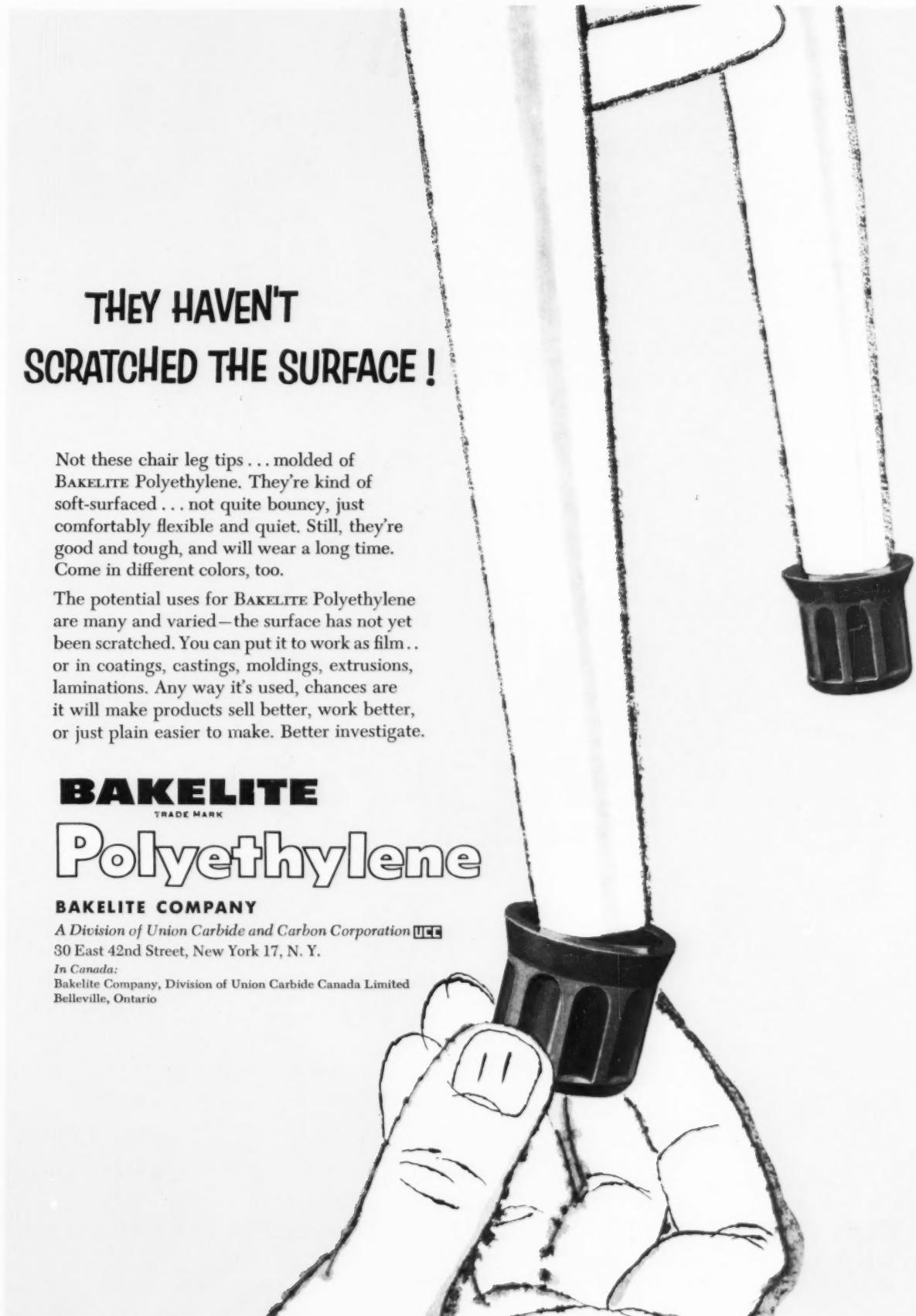
The potential uses for BAKELITE Polyethylene are many and varied—the surface has not yet been scratched. You can put it to work as film . . . or in coatings, castings, moldings, extrusions, laminations. Any way it's used, chances are it will make products sell better, work better, or just plain easier to make. Better investigate.

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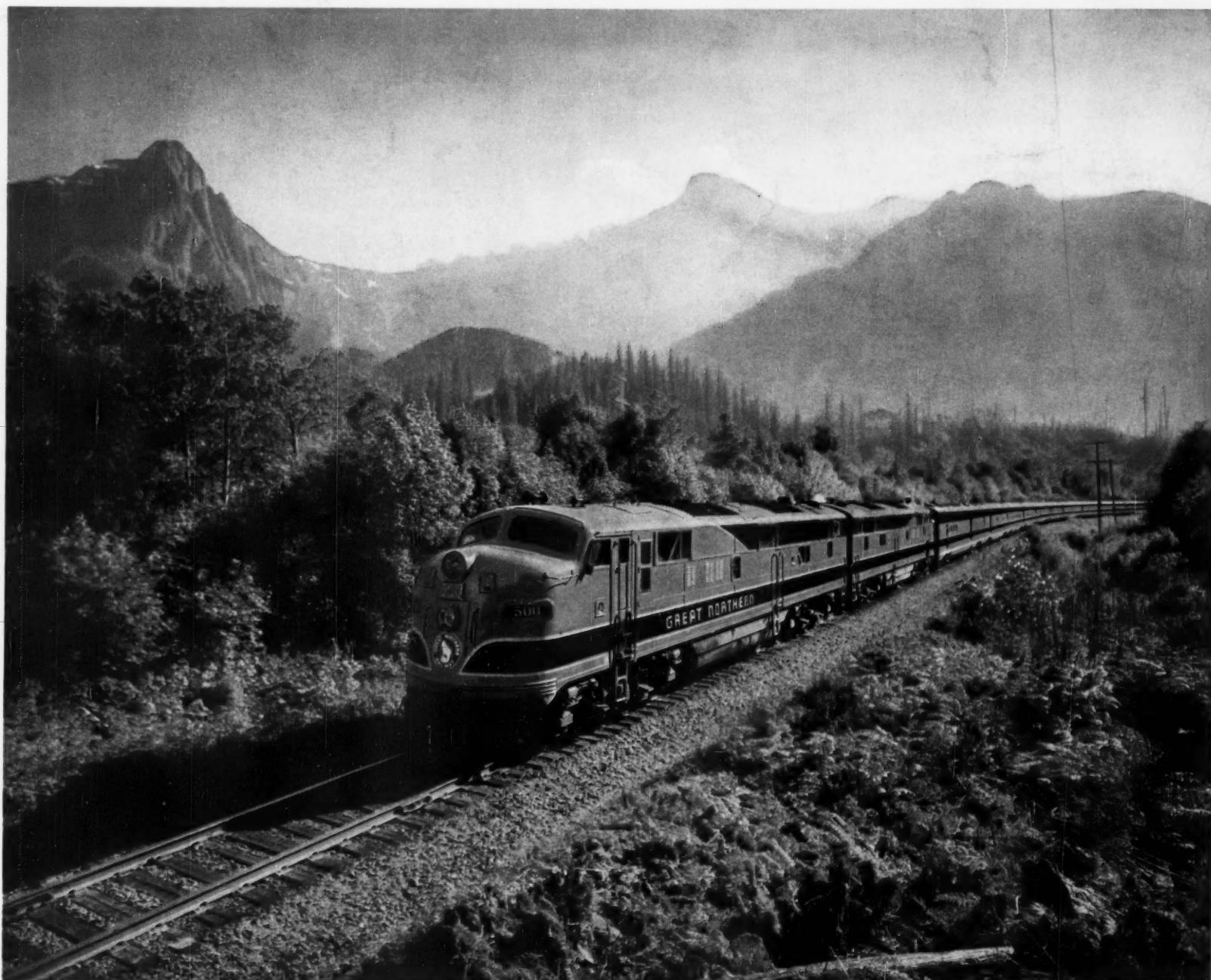
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What this Empire Builder did for people, the railroads are now doing for freight

PASSENGERS on the Great Northern's Timken bearing-equipped Empire Builder find an extra half day waiting for them in Chicago or Seattle. This new streamliner beats the old schedule by 13½ hours.

Now freights too are being speeded up by Timken tapered roller bearings. With "Roller Freight", one railroad cuts a desert-mountain livestock run from 60 hours to 27!

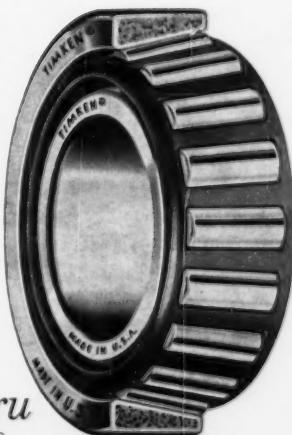
"Roller Freight" ends the railroads' No. 1 problem and chief cause of freight train delays: overheated friction bearings, or hot boxes. Since Timken bearings *roll* the load, they don't heat up like old-style friction bearings. When all freight cars have roller bearings, the railroads will save over \$55 million a year just by eliminating the hot box problem.

Why do Timken bearings roll with so little friction and have such fine

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Only **TIMKEN**® bearings roll so true, have such quality thru-&-thru



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